FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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AFMA Plans First Conference of Feed Sales Executives

CHICAGO — "The first conference of American Feed Manufacturers Assn. Sales Executives should prove to be a milestone in the history of the organization." So stated W. E. Glennon, AFMA president, in announcing plans for the closed meeting of the sales executives of the association's active membership. The conference will be held in St. Louis Sept. 29-30, 1959.

Attendance at the conference has been limited to two sales executives from each feed manufacturer.

"This is a 'workshop' type conference as contrasted to the usual 'convention'," Mr. Glennon said.

"A majority of the 23 speakers on the program are feed industry executives of proven ability. Ample time for audience participation has been arranged. It will be a practical, hard-hitting, two-day program that will be packed with information beamed ex-

(Turn to AFMA, page 93)

SCHOOL ENROLLMENT ACCELERATING

KANSAS CITY—With the 10th annual Feed Production School only about three weeks away, enrollments are coming in at an accelerated pace, school officials report. The school will be held Sept. 23-25 at the Hotel Continental in Kansas City, with a Small Mill Short Course on Sept. 26.

Already persons from 36 states have enrolled. In addition, there will be representatives from four Canadian provinces, Panama, Venezuela and Trinidad. Officials believe every state in the union will be represented when the school convenes.

A check on the enrollment list to date shows that half of the enrollees are from firms that have never before been represented. Companies which have sent people in the past are expected to enroll their production men again because of the important nature of this year's program, according to Lloyd S. Larson, president of Feed Production School, Inc. He noted that there is still time to enroll and urged early registration. (Enrollment blank on page 3.)

USDA Sees Declining Cattle Prices But Prospects for Average Profits from Feeding

WASHINGTON — Prices of cattle have been unusually stable this year, and prices may be at or near their cyclical high. In the coming feeding year, cattle producers and feeders will likely begin to face a slowly declining price level.

This is noted by the U.S. Department of Agriculture in surveying the outlook in the months and year ahead.

The more stable prices this year followed two years of almost uninterrupted advances, and now a decline is in the cards. The chief factor pointing to the beginning of a decline in '60, said USDA, is the big inventory of slaughter steers and heifers being built up. An appreciable increase in slaughter supplies is expected in 1960, but with the cow herd and calf crop not having expanded a great deal, a really sharp increase in slaughter is unlikely.

USDA noted that prices of feed in the coming year probably won't change much, so possibilities of earning normal profits in feeding will be linked closely to feeder cattle price trends this fall. Prices of feeder cattle are likely to decline somewhat further and by mid-fall may be below a year ago, thus improving profit prospects in feeding compared with earlier prices.

Feed men in the cattle feed business will be interested in the following review of USDA's analysis of the cattle outlook:

More Cattle on Farms: The outlook for beef cattle in 1960 is framed by these two factors: (1) Total cattle numbers on hand next year will

(Turn to CATTLE, page 8)

McKee Firm of Iowa To Build New Plant

MUSCATINE, IOWA — McKee Feed & Grain Co., Muscatine, has contracted with Mill & Elevator Co., Des Moines, to build a new commercial feed plant here which will have a production capacity of 300 tons a day.

This announcement was made by Harry McKee, vice president of the Muscatine firm, who said the new plant will be "one of the most modern and automatic in the Midwest" and will be a "completely automatic push-button operation."

The plant building, he said, is to be constructed of concrete and steel,

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Trade and Ag Problems, Outlook Discussed at Kentucky Conference

By HENRY S. FRENCH
Feedstuffs Staff

LOUISVILLE, KY. — A program which cast light on several subjects of interest to the feed and grain industry, both local and national, attracted some 100 delegates to the Kentucky Feed Conference at the Brown Suburban Hotel in Louisville Aug. 17-18.

Named as the new president of the Kentucky Feed & Grain Assn., which co-sponsored the conference with the University of Kentucky, was B. C. Parker, Pan American Mills, Bowling Green, Ky. Other officers are Louis Shadburne, Henry Fruechtenicht Co., Inc., Louisville, named as vice president, and Jack Weber, Lexington (Ky.) Roller Mills, was re-elected secretary-treasurer. The retiring president is M. J. Rahiya, Kentucky By-Products Corp., Louisville.

New directors are: Harold Robinson, Robinson Milling Co., Somerset, Ky.; Cliff Guernsey, Walker Bag Co., Louisville; Carroll Henry, Crescent Roller Mills, Taylorsville, and E. J. Neubeyer, Farmers Elevator Co., Owensboro.

Feed additives, and legislation surrounding them, along with contract operations and integration, drew considerable attention at the meeting. The feed additives amendment, which

(Turn to KENTUCKY, page 89)

USDA to Purchase Turkeys for School Lunch Program

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — This week the U.S. Department of Agriculture put a stop-gap support program under light weight turkey marketing when it invoked a school lunch procurement program for turkeys.

USDA officials said that the lighter weight birds will be larger in number, but not increased in meat tonnage.

The USDA position is that they want to firm up the early marketing situation for the turkey industry through a school lunch program, and that this operation does not necessarily mean that they will continue to bail out the turkey industry for the balance of this year.

In short, they are sharp-shooting at market possibilities, and not prescrib-

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FEEDSTUFFS *Features This Week*

POULTRY NUTRITION: A review of papers presented during the recent Poultry Science Assn. meeting is continued in a second installment on **page 10.**

FEED MILL: A report on how a poultry integrator in the South has improved efficiency with a new mill appears on **page 26.**

SWINE FEEDING: A discussion of all aspects of balancing swine rations starts on **page 34.**

— REGULAR FEATURES —

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Agree to Reexamine Policies on Poultry Credit

WASHINGTON — Representatives of private and government credit agencies agreed recently at a meeting called by the U.S. Department of Agriculture, to re-examine their lending policies with a view toward avoiding overexpansion in the poultry industry.

The group reaffirmed a policy agreement made at a similar meeting two years ago that credit agencies use the utmost discretion in lending money to the poultry industry, particularly where it might lead to expanded production.

Kenneth L. Scott, director of Agricultural Credit Services, who conducted the meeting, pointed out that institutions that extend credit to the poultry industry can aid in bringing greater stability to the industry by following this policy, and in this way, bring about a better balance between production and demand.

Since World War II, he said, the poultry industry has experienced an unprecedented growth, but in recent years consumer demand has not kept pace with the expanding output of the industry and poultry producers have been undergoing financial difficulties.

Attending the meeting as representatives of private credit agencies and industry were: Ben C. Corlett, American Bankers Assn.; M. Monroe Kimbrel, First National Bank, Thomson, Ga.; Horace Steele, Deposit Guaranty Bank & Trust Co., Jackson, Miss.; L. B. Stuart, Ralston Purina Co.; Ed Givens, Southern States Cooperative, Inc., Richmond, Va.; Don M. Turnbull, American Poultry & Hatchery Federation, Kansas City Mo., and Richard McConnell, Institute of Cooperation.

Those representing government agencies were: Kenneth L. Scott and Harry Thomas, Agricultural Credit Services; Harold A. Miles, Paul Fankhauser and R. C. Mahone, Farm Credit Administration; Kermit Hansen and Clayton Case, Farmers Home Administration; Hermon I. Miller and Edward Karpoff, Agricultural Marketing Service; Fred L. Garlock, Agricultural Research Service; Phil Allen, Federal Reserve Board; Halford G. Davis and William B. Stansbery, Federal Housing Administration, and Theodore T. Perkins and Chas. A. Barth, Small Business Administration.

FEEDSTUFFS

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EDITORIAL STAFF—George L. Gates, Editor; Roger Berglund, Managing Editor; John Cipperly, Washington Correspondent; Emmet J. Hoffman, Merchandising Editor; James E. Sharon, James H. Ross, Fred E. Tunks and Vermayne N. Sundem, Editorial Assistants; James S. Barden, Research Director.

WASHINGTON CORRESPONDENT—John Cipperly, 604 Hibbs Building, Washington, D. C., Telephone, Republic 7-8534.

ADVERTISING STAFF—Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Department Manager; Bruce A. Kirkpatrick, Advertising Production Manager; Leland C. Hubert, Assistant Advertising Production Manager; R. Dale Swenson, Promotion Manager.

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Top of the Hopper

HOW DID COLLEGE FEEDERS DAYS get their start? These events, held at practically every agricultural experiment station, at present bring feeders of all classes of livestock up to date on the latest research in feeding and management. They attract attendance in the hundreds, and reports presented have an important impact on the feed business. So feed men (and Feedstuffs) try to keep in touch with the goings on as best they can.

Prof. William Loeffel, chairman of the animal husbandry department at the University of Nebraska, reports that the first feeders day ever held was at Nebraska back in 1911. Howard R. Smith, then a member of the Nebraska faculty and now living in Somerset, Mich., gets credit for originating the idea. We recently asked him to tell us how it came about. Reports Prof. Smith:

"We had been carrying on some rather extensive feeding tests in fattening steers to determine the most economical methods of producing beef in Nebraska. The results were so striking that it seemed advisable to invite farmers to Lincoln to see the cattle at the close of the tests, and to have them know just how the different lots were fed. To our surprise, a large number came.

"This was long before the use of antibiotics. The rations fed were farm-grown products, with the use in some cases of various protein supplements. The interest was so great, it was decided to make it an annual affair. This was after I had accepted an invitation to be chairman of the department of animal husbandry at the University of Minnesota in 1912.

"In later years I had occasion to attend Feeders Day in Nebraska, and what a satisfaction it was to see the college auditorium filled to capacity with farmers from all parts of Nebraska and some from other states, eager to learn the most up-to-date methods of meat production. Progress in breeding and feeding livestock during recent years has been beyond the comprehension of most of us."

With this statement we all can agree, and many scientists tell us that the livestock industry is just on the threshold of much greater breakthroughs in the science of feeding. Feeders days, and the experimental work behind them, no doubt will continue to play a big part in this progress. The forward looking pioneers in this valuable extension of education, including Prof. Smith and many others, deserve a vote of thanks from feeders, consumers and industry.

Prof. Smith, by the way, has been devoting some of his time in the past few years to writing a booklet, "The Conquest of Bovine Tuberculosis in the U.S.," now in its second edition. The U.S. Department of Agriculture recently distributed 125 copies to its veterinarians. He formerly served as general manager of the National Livestock Loss Prevention Board of Chicago.

IN SOME OF THE MIDWESTERN crop and livestock areas, there has been a great shift in recent years away from small grains. Where one once saw large amounts of oats, we now frequently see section after section of nothing but corn and soybeans. Many of the farmers in these areas are now concentrating on soybeans as a cash crop and are growing corn to feed more hogs and beef cattle. A good many farmers have dropped out of dairying, and laying operations also have declined in some of these sections. Hogs and cattle, however, are on the increase.

A NEW TYPE OF ORGANIZATION, incorporated turkey farms with non-agricultural stockholders, is becoming a more important factor in the

(Turn to **TOP OF THE HOPPER**, page 89)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Demand for formula feeds around the nation ran at about the same slow pace this week as last, which is contrary to the upward trend expected to begin now instead of in September. Hot and humid weather seems to have contributed to the slowness. Another factor: Feeders, somewhat discouraged by continuing low poultry and egg prices, a downward trend in the hog market and the prospect for weaker cattle prices, apparently were continuing to slight their formula feed buying habits. Poultry numbers were reported to be down in some areas, and turkey flocks have reached the point where producers can depend more on corn and grain in the ration. It was apparent in some cases at least, that the seasonal abundance of homegrown grains prompted hog producers to change their feeding programs. The U.S. Department of Agriculture reported that both the cattle and hog cycles are in the upward phase, with cattlemen expected to add 4-5 million head to this year's total. The wholesale feedstuffs price index dropped .4 point to 77, considerably below the 81.7 mark of a year ago. Feed-grain price showed little change, with the index number at 68.8 this week, compared with 69 a week ago and 69.8 a year ago. The hog-corn ratio, based on Chicago prices, was 11.6, well below the 15.4 ratio for the same week last year. (Ingredient prices in detail on pages 90-92.)

Northwest

Formula feed business this week was almost a carbon copy of last week's, and manufacturers, therefore, described the situation as pretty dull.

Fingers were pointed at continued low poultry and egg prices and lower prices for hogs and cattle for making the major contribution toward the farmer's uninspired feeding attitude.

There was some hope last week that August's feed business was picking up some, but this improvement hasn't developed as yet. Manufacturers are hoping the current slump will end soon so they can start out September with optimism.

There was at least one bright spot in an otherwise gloomy picture. One feed industry representative noted that his company's turkey business was good, with the feeders staying on a sound growing and fattening program to get their birds to market as quickly as possible.

Ingredient trading saw very little action this week. The only real firmness turned up in linseed oil meal.

Central States

As the month of August draws to a close, commercial feed manufacturers are beginning to comment on the rather general letdown in demand for their product. For the most part, mixers are running on a five day basis, although in some instances, the work-week has been whittled down to some degree. However, even in those instances where they have been going along on a forty hour week, there have been increasing complaints about a lack of or, at least, considerable lessening in the back-log of orders. Various ones in the industry were mentioning that compared with last August, the current month would not make a favorable showing.

As has been the case for some time, demand for hog feeds is holding up about the best of the various lines with the hog markets showing more or less stability. However, with what is known about the prospective fall crop of pigs, this situation could change rather easily.

Southwest

Formula feed business in the Southwest this week is moving at about the same pace as recently. The slow pattern is broken only occasionally by a little spurt of business as dealers replenish inventories or as sales departments put on a special push. Running time is generally 4½-5 days. Some mills reporting 5 days note that they are not using a full crew and could produce a lot more feed in the same time if the demand was there.

The turkey feed movement is excellent, with demand considered near its peak. Hog rations continue to be fast moving, despite lower hog prices. This volume is down from earlier, however, as many farmers apparently have grown very reluctant to incur any out-of-pocket expense for hogs they are pretty sure won't command a premium price when they are marketed.

Laying feeds are moving quite well, especially for mills that have special programs. Broiler feed demand is still fairly good, although it is expected to taper off after Sept. 1 as cut-backs in placements occur.

Dairy ration demand seems to go up and down with pasture conditions. Right now pretty good rains have reduced it. Cattle feed movement is still quite slow. Large scale bookings have not yet started.

Price lists for next week are expected to be unchanged to down $1. Most ingredients have shown weaker tendencies this week, notable exceptions being animal protein and dehydrated alfalfa.

Northeast

Livestock and poultry appetites wilted under an intense, prolonged heat wave and sales of formula feed continued slow. Daily temperatures in this area ranged from 85-90° and above.

Despite the heat, not too many complaints have been heard about pastures. Rains have been hit-and-miss affairs, but evidently farmers have received enough moisture to offset the hot spell.

The sales pattern remained unchanged, with egg mashes leading the way followed by growing feeds, turkey feeds, dairy and broiler feeds.

Broiler prices in the East edged up one-half cent a pound to an average of 16¢ lb. Eggs held about steady.

The ingredient market drifted along during the week, with little or no outstanding movement either way. Gluten meal dropped $3 in the first price change in some time.

Bran and middlings were quiet, with sacked items in a better position than bulk.

Running time of formula feed manufacturers averaged 32 hours last week, unchanged from the preceding period.

Southeast

All types of feed business in the Southeast are reported on the slow side this week.

Many processors of poultry feed are cutting down on their running time.

(Turn to **MARKETS**, page 95)

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CAPITAL COMMENT

BY JOHN CIPPERLY

Edible Oil Donations

WASHINGTON—The Senate agriculture committee this week bypassed a provision which would have authorized the U.S. Department of Agriculture to make available stocks of surplus edible oils for foreign and domestic donation in the form of end products. It also rejected a stronger proposal in an amendment to a bill extending Public Law 480 which would have authorized USDA to buy end products at a price which would have prevented the movement of either cottonseed or soybeans into the USDA loan program.

Both of these provisions would have been permissive since the proposed legislation would have been only authorizations—authority which USDA now has. But their inclusion in the act would have emphasized Congressional intent which USDA has thus far refused to recognize.

However, notwithstanding the Senate committee failure to approve this provision in the extension of Public Law 480, it now seems probable to this reporter that, ultimately, USDA will find it politically expedient to act under present authority to buy edible oil products for foreign and domestic relief programs.

Offered by Sen. Humphrey

The proposal which would have emphasized authorization of USDA to buy end products of oilseed and lard for donation programs of voluntary aid agencies was advanced by Sen. Hubert Humphrey (D., Minn.) in a bill previously approved by the Senate foreign relations committee.

It is now suspected, since the Minnesota Democrat did not fight for this provision on the Senate agriculture committee, that he reserved a more strategic position and may offer the proposal on the Senate floor when the bill comes up next week.

Refusal of the agriculture committee to approve a provision of donation for edible oils and fats this crop year appears to support heated arguments reaching this reporter, who believes that soybean prices will have to be sustained for the next 10 months with strong farm holdings of beans and firm edible oil prices as a support for end product prices.

This reporter's belief that soybean prices during March through May will be substantially higher on Chicago market than they are today is not a popular one. All sources calling here all the way from Texas, New York City and interior points say that, on the basis of crop reports, the edible oil situation as of Oct. 1, 1960, will show an increase over old crop carryout of edible oils in the magnitude of 500 million pounds.

This would represent approximately the increase in the cottonseed oil production from the large cotton crop this year plus the USDA estimates of the soybean crop of an average yield of 24.2 bu. acre.

Heavy Soybean Carryout

USDA faces a heavy soybean crop carryout, largely in the hands of resealed farm loans. USDA, apparently, is ready to withhold those old crop beans it has indicated it will hold off the market at the time of harvest at a price not less than 105% of the 1958 price support level of $2.12 bu., plus carrying charges.

Such a decision probably will carry through a December price announcement of USDA in its catalog pricing stocks. USDA may be seen as a firm holder of beans until midwinter.

And if the crop report falls below the recent optimistic yield per acre estimate, one should start thinking of high bean prices next spring.

Political Year Influence

Next year will be a political one. And this reporter believes even

(Turn to CAPITAL COMMENT, page 89)

Industry and University People Agree On Change in Kansas Feed Tech Group

MANHATTAN, KANSAS—Representatives of the formula feed industry and Kansas State University have agreed on a new organizational structure for the Kansas State feed technology advisory committee.

It was announced that the feed technology policy advisory committee will be dissolved and appropriate members of the university staff designated to serve on the feed technology inter-departmental relations committee. This new committee will deal with internal problems exclusively and thus will not duplicate work of the newly constituted feed technology advisory committee.

The following members of the Kansas State staff will serve with industry representatives on the feed technology advisory committee: Head, department of flour and feed milling industries; director, agricultural experiment station; director, school of agriculture; director, extension service, and dean of agriculture.

Six industry representatives on the feed technology advisory committee will be selected as follows:

—Two ex-officio members: President, American Feed Manufacturers Assn., and executive vice president, Midwest Feed Manufacturers Assn.

—Two industry members named by AFMA.

—One industry member named by MFMA.

—One industry member named by the Grain Processing Machinery Manufacturers Assn.

Appointed industry representatives on the committee will serve three-year terms.

Maurice Johnson, Staley Milling Co., division of Spencer Kellogg & Sons, and John Heimovics, Shanzer Manufacturing Co., currently serving on the Kansas State feed technology policy advisory committee, are to be appointed for three-year terms as industry members of the reconstituted feed technology advisory committee.

The chairman (an industry member) and the secretary (a Kansas State staff member) are to be elected by the committee.

Subcommittee chairmen representing scholarships, promotion, research and other fields deemed appropriate will be selected by the committee from industry members.

Committee meetings, according to the new setup, will be held at least semi-annually at Kansas State University or at some other mutually selected place.

80 Companies Join AFMA in Current Membership Drive

CHICAGO—Eighty companies have joined the American Feed Manufacturers Assn. during the first 80 days of a summer-long AFMA membership campaign. Thirty-four of these new memberships have been received since the last "progress report" was issued by the association in July (Feedstuffs, July 18), according to W. E. Glennon, AFMA president.

Mr. Glennon expressed "appreciation for this vote of confidence and support by the 80 firms." He added: "We trust that many more firms will affiliate themselves with the nation's feed industry program and take advantage of the many services enjoyed by AFMA members."

The current membership campaign was inaugurated June 1, 1959. It represents the first time AFMA staff members have traveled extensively and mailed specially-prepared printed materials to acquaint non-member feed companies with the association's activities. The eight-point AFMA program includes legislation, public relations, nutrition, market research, sales, traffic, feed control relations, purchasing and related areas.

To Contact Allied Firms

A new membership campaign for associate AFMA members is now being launched, according to Mr. Glennon. The new effort will be to obtain memberships from companies that sell equipment, ingredients and services to feed manufacturers.

The 34 newest AFMA members are: Arbie Mineral Feed Co., Inc., Marshalltown, Iowa; Banner Roller Mills, Inc., Lincolnton, N.C.; Bartlett & Co., Kansas City; Berkowitz Feed Mill, Norma, N.J.; Bryan Milling & Grain Co., Spalding, Neb.; Burlington (Wis.) Feed Co.; Crookston (Minn.) Milling Co.; Diamond V Mills, Inc., Cedar Rapids, Iowa; Farmers Feed & Supply Co., Tipton, Iowa.

Florida Feed Mills, Inc., Jacksonville, Fla.; Gleco Milling Corp., Charlottesville, Va.; Horse-Shoe Mills, Inc., Pine Bluff, Ark.; Hudson Mills, Inc., Okolona, Ohio; Kassik Companies, Milligan, Neb.; Lewis-Pacific Dairymens Assn., Chehalis, Wash.; Lipscomb Grain & Seed Co., Springfield, Mo.; Midland Feed Co., Billings, Mont.; the Ohio Equity Exchange Co., Lima, Ohio; Plush Mills, Glasco, Kan.; the Procter & Gamble Distributing Co., Cincinnati; J. S. Ritchie & Sons, Inc., Petersburg, Va.

H. Rockwell & Son, Canton, Pa.; South Texas Feed & Seed Co., Robstown, Texas; the Standard Milling Co., Inc., Lubbock, Texas; Star-Kist Foods, Inc., Terminal Island, Cal.; Tindle Milling Co., Springfield, Mo.; Wafco Mills, Inc., Greensboro, N.C.; Walnut Grove Products Co., Inc., Atlantic, Iowa; C. P. Wenger & Sons, Ephrata, Pa.; West (Texas) Flour Mills, Inc.; Western Feed & Milling Co., Springfield, Mo.; Wrights Feed Milling Co., David City, Neb.; Youngblood's, Inc., Waco, Texas, and Zip Feed Mills, Sioux Falls, S.D.

Oregon Co-ops to Merge Sept. 1

HILLSBORO, ORE.—The Tualatin Valley Cooperative has voted to merge with the Western Farmers Cooperative, Inc., as of Sept. 1.

The Tualatin Valley Cooperative has a feed manufacturing plant, seed processing plant, grain and seed storage and a diversified line of farm equipment.

The Western Farmers Cooperative is the Oregon operation of the Washington Farmers Cooperative Assn. A new feed mill is now in the planning stage. Purchase of the Tualatin Valley Cooperative is the first move in a plan to purchase Willamette Valley plants.

Senate Approves 'Disaster' Feed Bill

WASHINGTON—The Senate this week approved and sent to the House a bill offered by Sen. Karl Mundt (R., S.D.) which would authorize the sale of grain owned by USDA for disaster feed distribution at the market price at time of sale through trade channels.

The Mundt bill was rejected by USDA when it was introduced. It sets forth no administrative requirements as to trade channels or price, but leaves a wide gap in handling of the measure.

Official comments are to the effect that Sen. Mundt is off-side as to locally-grown commodities in his own state, such as oats, of which USDA has substantial amounts. If the Mundt amendment is approved by Congress, it would mean that the oat producers of that state would be required to face a Commodity Credit Corp. market price rather than the statutory re-sale requirement of not less than 105% of price support level, plus carrying charges.

The Mundt amendment would put CCC stocks of feed grains into open competitive position with new crops at the farm level.

The Mundt amendment is only permissive on USDA, and it may be seen as little more than window dressing for the South Dakota Senator, and unlikely of adoption. When submitted to the Senate it had the objection of USDA. The White House veto has a record of sticking.

Claude Carter Named New AFMA Director

CHICAGO—The board of directors of the American Feed Manufacturers Assn. announced that Claude I. Carter, general manager, Alabama Flour Mills, Decatur, Ala., has been elected to the board to fulfill the unexpired term of L. F. Van Stone, which will expire May, 1962. Mr. Van Stone recently resigned as president and general manager of Uncle Johnny Mills, Houston, Texas, to become executive vice president and general manager of United Salt Corp., also of Houston.

Mr. Carter is a native of Weogufka, Ala., and attended Alabama Polytechnic Institute, Auburn. Following graduation, he was employed by the Farm Security Administration, and in 1941 joined Alabama Flour Mills as director of nutritional research. Mr. Carter then served in sales and service and became general sales manager and manager of the feed department.

Since Mr. Carter's appointment as general manager, Alabama Flour Mills has expanded its operations, building plants at Tunnel Hill, Ga., in 1956 and at San Juan, Puerto Rico, in May of this year.

Mr. Carter has been an active member of state, regional and national feed associations and served on the AFMA advisory committee to the agricultural service division for several years.

NEW FEED MILL

OSAGE, IOWA—Construction on the new feed mill for the Osage Co-op Elevator was started recently. The mill will include 26 bulk bins, grinding and mixing facilities, a 30 ft. sq. warehouse and a driveway to be used for storage space. A five ton and a two ton mixer will be installed, as well as a hammer mill.

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This advice to buyers, of course, simply means, "Don't buy unseen (or untried) merchandise." It originated in the marketplace in early England, where shrewd sellers would put a sick pig in a sack (or poke), hoping that some unwary buyer would purchase it sight unseen. This strategem often worked, for buyers hesitated to risk opening the sack and losing the pig in the crowded market. A few sellers even went so far as to substitute a cat for a pig — and you can imagine how the buyer felt when he got home and took a look at his "pig in a poke", only to find that he was "letting the cat out of the bag!"

When you buy a "poke" of Small's Dehydrated Alfalfa, you always know *exactly* what you're getting because we give you a *guaranteed certificate of analysis.* Back of this guarantee stand the reputation for quality and all the facilities that have made Small's Dehydrated Alfalfa the first choice of discriminating feed buyers since the inception of the industry.

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FOR FEEDS WITH A FUTURE

Small's dehydrated alfalfa

ADM Earnings | Oilseed Meal Futures | Effects of Chemell Development

New Swine Feeding Research Reported at Purdue Event

By DR. J. H. CONRAD
Purdue University

LAFAYETTE, IND.—Swine nutrition research results reported at the Purdue Swine Day Aug. 28 ranged from the feeding of dehydrated and pelleted corn silage as a gestation ration to experimental results indicating the proper supplementation of corn-soybean meal type rations for growing-finishing swine in confinement.

Purdue animal scientists reported such research results as these:

- Trace mineral additions to a corn-soybean meal type ration significantly increased gains of pigs during the growing period (30 to 100 lb.).
- Feeding of three different enzyme preparations to growing-finishing swine (initial wt. 27 lb.) fed a corn-soybean meal type ration failed to significantly affect daily gains.
- Additions of 2% of dehydrated alfalfa meal, corn distillers dried solubles, condensed fish solubles, and meat and bone scraps alone or in combination did not improve gains or feed efficiency of growing-finishing pigs fed a corn-soybean meal type ration and raised on concrete from birth to market.
- Pigs fed a 1959 mixed ration gained 73% faster on 21% less feed than pigs fed a 1909 mixed ration.
- Seven different feed additives or combinations of feed additives significantly increased gains of growing-finishing swine.
- Mist-type sprayings of pigs fed high energy rations during the finishing period increased gains 14%.
- Tranquilizers failed to increase daily gains, stimulate feed intake or improve feed efficiency in two experiments.
- Terephthalic acid increased gains an average of 4% and saved 2% of the feed required per hundred pounds of gain.
- Sows fed dehydrated and pelleted corn silage gained 1 lb. per day during gestation and farrowed 12.5 pigs per litter.
- Either a pelleted gestation ration containing 60% ground corn cobs or one containing 72% soybean mill feed resulted in satisfactory reproductive performance.

Following are research report summaries:

Fifty Years of Scientific Development in Swine Nutrition—A Comparison of 1909 vs. 1959 Rations for Growing-Finishing Swine—J. H. Conrad and W. M. Beeson: When developing and feeding the swine ration that will today produce lean meat most rapidly on the least amount of feed and with the lowest feed cost, it is worthwhile to consider how much progress has been made to date. The objective of this trial was to demonstrate 50 years of progress in swine nutrition.

Results: After 91 days, eight pigs fed the 1959 free choice ration of shelled corn and Purdue Supplement 2 gained 46% faster, required 8% less feed per pound of gain and made 12% more economical gains than pigs fed the 1909 free choice ration of shelled corn, tankage and salt. Daily gain, feed required per 100 lb. of gain and feed cost per 100 lb. of gain for pigs fed the 1909 free choice ration were 1.02, 357 and $9.72, compared to 1.49, 328.4 and $8.59 for the 1959 ration.

Pigs fed the 1959 mixed ration of ground corn, 50% soybean meal, dicalcium phosphate, limestone, iodized salt, trace minerals, vitamins and antibiotics gained 73% faster, required 21% less feed per pound of gain and made 18% more economical gains than pigs fed the 1909 mixed ration of ground corn, wheat middlings, linseed oil meal, limestone and salt. Daily gain, feed required per 100 lb. of gain and feed cost per 100 lb. of gain for pigs fed the 1909 mixed ration were 0.99, 404 and $10.96, compared to 1.71, 320 and $9.00 for the 1959 ration.

As the pig grows from weaning to market weight the feed required per pound of gain increases. Therefore, feed efficiency and feed cost per 100 lb. gain on a comparable weight basis follow. From 44 to 147 lb., the pigs fed the 1959 ration free choice required 15% less feed per pound of gain and made 16% more economical gains than pigs fed the 1909 free choice ration from 44 to 136 lb. From 44 to 137 lb., pigs fed the 1959 mixed ration required 28% less feed per pound of gain and made 25% more economical gains than pigs fed the 1909 mixed ration from 44 to 134 lb.

Trace Mineral Additions to Corn-Soybean Meal Rations for Growing-Finishing Swine—J. H. Conrad, M. P. Plumlee and W. M. Beeson: Corn and soybean meal or mixtures of them are deficient in calcium, phosphorus, salt and zinc for growing-finishing swine. Beneficial effects from adding small amounts of iron, copper, cobalt, magnesium and manganese or combinations of these elements to swine rations have been reported. The results have varied considerably between areas and rations. These reports are a little confusing when compared with data obtained from detailed quantitative studies at Purdue and elsewhere which indicate that corn and soybean meal contain adequate amounts of these five elements.

The objective of this experiment was to determine if a corn-soybean meal ration supplemented with calcium, phosphorus, iodized salt, vitamins and antibiotics would be improved by the addition of trace minerals.

Results: Certain trace mineral additions to a corn-soybean meal type ration significantly increased gains during the growing period from 30 to 100 lb. (a) Three pigs in the control lot developed mild cases of parakeratosis; (b) zinc alone (50 ppm.) increased gains 6.6%; (c) iron (50 ppm.) plus zinc increased gains 10.6% as compared to the controls (difference significant at the 5% level); (d) manganese (20 ppm.) plus iron, copper and zinc increased gains 11.8% as compared to the controls (difference significant at 1% level); (e) magnesium (200 ppm.) appeared to exert a depressing effect on rate of gain; (f) a complex trace mineral mixture added to supply cobalt (1.3 ppm.), copper (3.7 ppm.), iodine (1.9

(Turn to PURDUE, page 93)

THE NAME IS CAROLINA ASSOCIATION NOW

RALEIGH, N.C.—The name of the association of North and South Carolina feed men is now the Carolina Grain & Feed Dealers Assn. At the recent meeting of the North Carolina Grain & Feed Dealers Assn. at Myrtle Beach, S.C., members voted to change the name of the association. This will officially make a two-state association of grain and feed dealers in the Carolinas. David H. Banks of the Banks Fertilizer Co., St. Matthews, S.C., was elected to the board of directors.

Other South Carolina members in the association are Spartan Grain & Mill Co., Spartanburg; R. Joe Hearon, Bishopville; Allen Bros. Milling Co., Columbia; Bonnoitt's Mill, Darlington; George B. Kerr, Inc., Bennettsville; Carolina Feed Mills, Cheraw; Southeastern Hatcheries, Leesville; McLeod Milling Co., Manning; Gurley Trading Co., Loris; R. H. Collins Grain Co., Lancaster; and Fred T. Hollis, Inc., Bennettsville.

Purina to Open New Iowa Plant

OTTUMWA, IOWA — The Ralston Purina Co., St. Louis, has scheduled opening ceremonies Sept. 19 at its new mill at Ottumwa, Iowa. Several thousand people from southern Iowa and nearby counties in Missouri and Illinois are expected to attend.

Entertainment will include national television and radio personalities—Minnie Pearl, Homer and Jethro and Captain Stubby and the Buccaneers. A number of local and state dignitaries will be present.

The program will start in midmorning with conducted tours through the new mill. A free luncheon of barbecued chicken will be served to guests.

According to company officials, the mill will manufacture a full line of Purina Chows for livestock and poultry. It will have a capacity of about 100,000 tons of Chows per year. Approximately 50 persons will be employed.

'Changes, Challenges' Called the Theme of GFDNA's 1959 Meeting

MINNEAPOLIS — "Changes and Challenges" might well be the theme of the 1959 Grain & Feed Dealers National Assn. meeting in Minneapolis, officials said in outlining plans for the event.

More than 50 national directors and some 200 trade leaders will be on hand to participate in the meeting Sept. 13-14. (See story in Aug. 22 Feedstuffs for program details.)

A more recent association release said topics to be discussed also will include the Commodity Credit Corp. and Commodity Stabilization Service cost study of commercial grain warehouses to obtain data for use in the re-negotiations of the Uniform Grain Storage Agreement, the Senate Committee on Agriculture and Forestry investigation of the CCC-CSS management policies and practices and various bills in Congress of direct interest to the grain and feed trades.

The national committee on uniform grades and the national trade rules committee will hold meetings to discuss current problems and plan future programs of activities.

Madison Clement, association president, will announce the appointment of an education and public relations committee, which will hold its first meeting in Minneapolis.

Further Weakness In Cane Molasses

NEW ORLEANS—Further weakness in markets for feeding cane molasses covered the southern and midwestern states during the week ended Aug. 25, the New Orleans grain division office of the U.S. Department of Agriculture reported.

A generally slow demand provided insufficient interest by buyers to prevent a continuation of the price decline, according to James W. Coddington of the New Orleans office. Slow movement of most feed ingredients, coupled with relatively low prices to farmers for cattle and hogs, contributed to the weak market situation. Supplies were adequate.

New Orleans prices were ¼¢ lower at "mostly" 10.5¢ gal. Prices were unchanged to ¼¢ lower at Texas ports and Mobile. Further weakness was indicated in the Savannah-Wilmington area where prices dropped 1¢ gal., at the bottom of the price range, to unchanged.

In the Midwest, prices declined ¼¢ gal. at Chicago, Cincinnati, Kansas City and St. Louis. Markets held steady with unchanged prices on the west coast and in northeastern states.

More Alabama Broiler Contractors Confident In Poultry Exchange

By Special Correspondent

CULLMAN, ALA. — Broiler contractors in the Sand Mountain area recently expressed confidence in the newly-opened Alabama Poultry Exchange here, and predicted closer coordination with those now operating in Texas, Arkansas, Georgia and North Carolina.

A noted increase in interest on the part of processors in north Alabama was cited as an indication the volume of sales will eventually be such that almost all north Alabama broiler prices will be predicted on the exchange quotations.

On the day this reporter visited the exchange, over 141,000 birds were offered. It was explained that offerings in the middle of the week—the visit was made on Wednesday—were usually light.

Of the first eight lots offered, five were "no-saled" when bidding failed to top 15¢, but seller resistance was gradually overcome as buyers raised their price to around 15¢—and in some instances as high as 15.2¢.

Initial Movement

The movement to establish the exchange got its initial push during the recent convention of the Alabama Poultry Industry when it was decided to call a special meeting to discuss the organizational plans, modeled after the Eastern Shore and North Georgia operations.

At this meeting, while some of the processors indicated their interest, the contractors backed up their support by subscribing more than $3,000 to get the exchange under way.

Later, the processors' support was "lukewarm," according to one of the feed dealers. However, when the exchange was formally opened, bids from three Gorgia processors helped to launch the project.

"The continued support of these Georgia plants," one feed dealer commented, "finally won over the Alabama buyers and we believe we'll have clearer sailing from here on out."

While north Alabama broiler prices have been on about the same low plateau as those in other areas, most contractors expressed confidence prices will increase to the point when there will be profit margins by late fall.

The Alabama broiler industry is probably less integrated than in north Georgia; most of the broiler contractors are also feed manufacturers.

Basic Operation

The basic operation, especially in the Sand Mountain area, is for the contractor to buy his baby chicks more or less on the open market and sell the finished birds in much the same manner.

Growers work on a contract providing for guarantees on total weight with bonuses for good feed conversion, low mortality and uniformity

(Turn to POULTRY EXCHANGE, page 93)

Mutual Millers, Dealers Set for Convention

JAMESTOWN, N.Y. — The Mutual Millers & Feed Dealers Assn., Jamestown, will hold its convention Sept. 15-16.

A golf tournament is scheduled Sept. 15 at the Moon Brook Country Club.

The program Sept. 16 includes a business meeting and election of three directors; a talk on "Changing Scene in American Agriculture" by C. M. Kessler, eastern regional sales manager of Allied Mills, and an afternoon outing at the Moose Club grounds on Lake Chautauqua.

USDA Anticipates

Whitmoyer 'Synergistic'

ate under the shadow of a possible bulge in cattle marketings and a

ADM Earnings Up $1.5 Million

MINNEAPOLIS — Archer-Daniels-Midland Co. reports that its earnings for the year ended June 30, 1959, were $1,531,764 higher than in the previous 12 months.

Net profit for the fiscal year was $5,435,386, equal to $3.83 a share, compared with $3,903,622, or $2.45 a share a year ago, the company said in its annual report. Sales and operating income totaled $239,370,108, against $225,811,912 for the 1957-58 period.

In their letter to stockholders, Thomas L. Daniels, chairman of the board, and John H. Daniels, president, said nearly every phase of ADM's diversified operations shared in the sales and earnings gains.

The soybean, linseed, flour, and grain operations returned better profits than a year ago, they said, while noteworthy gains also were recorded in sales to the chemical, protective coatings and taconite industries.

Volume and margins of formula feeds declined, with low prices for broilers, eggs and hogs contributing to the unsatisfactory showing, the report noted. "New concepts in feeding and marketing programs are being evaluated," it added.

Feed operations in Mexico, on the other hand, have improved. Sales volume of Industrial Pecuaria, S.A., an ADM associated company there, has risen steadily in the past year and operations have improved, the report said.

In partnership with a group of Mexico City industrialists, ADM owns three concerns in Mexico, the others being Commercial Distribuidora Laguense, S.A., and Division Veterinaria, Api-Aba, S.A. These concerns manufacture and market feeds, eggs, poultry and a full line of veterinary supplies in Mexico. Plants are at Mexico City and Rorreon, with another under construction at Guadala-

(Turn to ADM, page 93)

Memphis Trade Board To Open Soybean Oil Meal Market Sept. 1

MEMPHIS, TENN.—The Memphis Board of Trade will open a Memphis basis soybean oil meal market Sept. 1, and it will become the only futures market trading in this commodity produced in the Memphis territory or having southern delivery.

Arthur A. Williams, executive vice president, Memphis Board of Trade, said that this move was being taken because of the increased production of soybeans in southern states, particularly the Mississippi Valley and the Memphis trade territory.

He added that the soybean crushing capacity is being increased and now has reached a point where a southern futures market is justifiable.

The new market will be a 44% protein solvent processed contract and will offer processors, oil mills, dealers, exporters and handlers an opportunity for hedging or the securing of price insurance as well as trading in southern production soybean oil meal.

Fred Lovitt, Fred Lovitt & Co., was chairman of the committee that proposed the market. He was aided in this activity by the Memphis Board of Trade Clearing Assn. members: Cargill, Inc., Humphreys-Godwin Co., Fred Lovitt & Co., L. B. Lovitt & Co., Marianna Sales Co., Mitchell, Hutchins & Co. and The Pillsbury Co.

The board of trade held a meeting for oil mill men, processors and other interested parties some time ago to discuss the possibility of such a market. Several weeks ago the board of trade ceased eastern trunk line soybean oil mill and old process cottonseed oil meal trading temporarily. Neither has been returned to the boards.

Oilseed Meal Futures Lower at Memphis

MEMPHIS, TENN.—Oilseed meal futures wound up lower Aug. 25 on the Memphis Board of Trade, compared with one week earlier. New crop soybean oil meal continued to decline under favorable growing conditions for soybeans and a slow cash oil meal market, which also affected cottonseed oil meal.

The old crop August unrestricted soybean oil meal contract expired Aug. 20, in orderly fashion.

There were fractional minus signs in cottonseed oil meal futures during the rather indifferent trading week. More spreading operations were noted between soybean oil meal and cottonseed oil meal by speculative interests.

Memphis traders said that mixed feed business was still slow in most areas.

Virtually all old crop cottonseed oil meal supplies were gone and the new crop meal is yet to appear. Thus, the cash cottonseed oil meal market was at a standstill.

Unrestricted soybean oil meal closed Aug. 25 20¢@$1.10 ton lower than on Aug. 18 and bulk solvent cottonseed oil meal ended unchanged to 50¢ lower.

Trading for the period amounted to 4,900 tons unrestricted soybean oil meal and 1,700 tons bulk solvent cottonseed oil meal.

Top Executive Changes Announced by Peavey

MINNEAPOLIS—Several new officers of F. H. Peavey & Co. were announced following the annual meetings of Peavey stockholders and the board of directors.

F. Peavey Heffelfinger has been elevated from president of the firm to chairman of the board, succeeding his father Frank T. who died recently after 61 years of company service.

Totton P. Heffelfinger succeeds his brother as president of F. H. Peavey & Co. and continues also as president of Van Dusen Harrington division.

The new chairman has seen 39 years of company service and the new president has seen 38 years of service.

Two new directors were elected: Gilbert G. Giebink, treasurer, and Fredric H. Corrigan, vice president in charge of terminal merchandising.

All company officers were re-elected, including Charles E. Huntting, executive vice president.

Chicago Feed Club Plans Golf Outing

CHICAGO—The Chicago Feed Club has scheduled its annual fall golf outing for Sept. 15 at Olympia Fields (Ill.) Country Club. Prizes will be awarded to members and guests, including prizes on various holes, for low gross and for highest score. Non-golfers will also be given prizes.

All members and guests must tee-off before 1 p.m., at the request of the club. This enables everyone to be finished in time for cocktails and dinner. All scores must be in the hands of the "pro" by 6 p.m.

Another announcement regarding the party, plus reservation cards, will be mailed out soon.

Golf committee members are Jack MacAnulty, Bob White, Bill Edwards, John Sheetz, Homer Roberts and Art Fahrenkrog.

Board of Trade Elects

CHICAGO—Two Chicago businessmen have been elected to membership in the Board of Trade here, according to Warren W. Lebeck, exchange secretary. They are James S. Backoff, grain broker, Daniel F. Rice & Co., and Francis D. Wolfe, assistant floor manager, Bache & Co.

Effects of Chemell Developments on Livestock, Poultry Industries Weighed

By Special Correspondent

The extent to which southeastern livestock and poultry industries may be affected by the outcome of the Chemell Hatcheries request for a six-months' moratorium on $1,500,000 debts may be determined next month when creditors meet in Atlanta to approve or reject the proposed reorganization plan.

Livestock men, particularly those raising hogs on contract, will be watching closely the decision in Atlanta, it was learned following a recent field trip into three southern states.

It was pointed out that the large feed manufacturers "can make the difference" in deciding whether Chemell will continue to operate with a moratorium, or whether actual control of the hatching business in the industry shifts to the feed manufacturers with court supervision.

With more than a score of banks throughout the area listed as creditors, poultrymen point out that even if the banks did foreclose, they would be hard pressed to operate the far-flung corporations without having the know-how of the feed interests. This, they reason, is evidence the banks will more than likely be guided in their decision by actions of the feed people.

But since many of these banks are located in areas where beef cattle and hog production activities are heavy, there is speculation whether the restrictions of credit by banks could include projects other than broilers and commercial eggs.

Bank Creditors

The banks listed as creditors include the Farmers Bank, Douglas, Ga.; Fulton National Bank, Atlanta; Guaranty Bank & Trust, Alexandria, La.; Marine Bank & Trust, Tampa; Peoples Bank, Mendenhall, Miss.; Rome (Ga.) Bank & Trust Co.; South Carolina National Bank, Columbia; Talcott Finance, New York; American National Bank, Gadsden, Ala.; Deposit Guaranty Bank & Trust Co., Jackson, Miss.; First Citizens Bank, Fayetteville, N.C.; First National Bank, Gainesville, Ga.; First National Bank, Jackson, Miss.; First National Bank, Jasper, Ala.; Guaranty Bank & Trust Co., Greenville, N.C.; Pioneer Bank & Trust Co., Chattanooga; State Bank & Trust Co., Greenville, S.C.; Wachovia Bank & Trust Co., Charlotte, N.C.; Bank of Albany, Ga.; Bank of Dudley, Ga.; Bank of Tifton, Ga.; Farmers Bank, Douglas, Ga.; First National Bank, Shreveport, and Marion Bank & Trust Co., Marion, Ala.

Liquidating the large breeder flocks, which some estimate to produce almost 10% of the broiler chicks placed nationally, could result in large financial losses, while continued operation will provide revenue to cut down and possibly eliminate any loss to all of the creditors.

Poultrymen pointed out that if the Chemell empire falls, within a short time other hatcheries would increase production so that no over-all decrease would result. Instances in the past were cited where some areas openly announced cutbacks in chick placements, only to have other sections step up activities to more than offset the announced cutbacks.

Direct Sales

Some cattle and hog producers traced the Chemell situation to the highly integrated broiler program, and pinpointed that premise by citing that where hog production has been mainly on a contract basis, local prices have been pushed downward. The producers said that heavier marketings, in most cases direct to the packer, have supplied the demand—with the result that fewer bidders attend livestock auctions and that lack of buyer interest has depressed prices.

The livestock producers stated that if the open auction markets are continually by-passed in favor of direct sales, prices eventually will be controlled by the large buyers—as is the case with the broiler industry. Broiler people in general traced their woes to the large buyers "who quote their own prices when placing orders."

(Turn to CHEMELL, page 93)

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● No. 6 in a series of conversations

USDA Anticipates Fall Decline in Soy Meal Price

WASHINGTON—Prices of soybean and other oilseed meals probably will decline seasonally this fall when crushings of the 1959 oilseed crops begin to pick up volume, the U.S. Department of Agriculture reported this week.

Most high protein feeds have declined in price from the high level of early 1959. Soybean meal (bulk, Decatur) averaged $58.50 ton in July this year, nearly $4 above the June average, but $5 below January and $10 below a year earlier.

Soybean meal production continues to set new records as a result of the record 1958 soybean crop and good demand from livestock producers. Production this year is expected to total about 9.6 million tons, an increase of about 1.3 million tons over 1957-58. Of this total, about 9.1 million tons are expected to be fed to livestock.

U.S. supplies of soybeans during 1959-60 have been estimated at 581 million bushels, about 2.5% less than a year earlier. However, "free" supplies going into the new marketing year will be about 7% less because about 35-40 million bushels of old crop beans likely will be in the hands of Commodity Credit Corp., compared with only 14 million held by CCC a year earlier.

If current crushing and export estimates are substantially correct, the carryover of 1958 crop soybeans into the new marketing year beginning Oct. 1 probably will be around 50 million bushels, compared with 21 million a year earlier.

Swine Feeders Day in Minnesota Sept. 11

ST. PAUL, MINN.—Hog feeding research and swine evaluation programs will be featured at the 37th annual Swine Feeders' Day Friday, Sept. 11, on the University of Minnesota's St. Paul campus, according to a recent announcement by J. O. Christianson, director of agricultural short courses. Dr. R. J. Meade, university swine nutritionist, is program chairman.

Visitors will tour university barns and lots, see swine feeding experiments in progress and view a display of hog carcasses showing what makes a good meat-type hog. Dr. Meade will then report on influence of protein content on rate of gain and carcass quality, pelleted barley rations for hogs, injectable iron for prevention of nutritional anemia and antibiotics for growing and finishing pigs.

In the afternoon, the following research men from four university branch experiment stations will report on feeding trials: Dr. A. B. Salmela, Grand Rapids; Harley Hanke, Morris; Dr. Kenneth Miller, Waseca, and Diedrich Reimer, Crookston.

Raymond L. Arthaud, extension livestock specialist, will discuss an "On-the-Farm" testing program for swine producers and Edgar Urevig, general manager of Tilney Farms, Lewisville, will talk on "What About Modern Swine Systems?"

Dr. Meade, who is also secretary of the Minnesota Swine Producers Assn., will close the event with a report on the Minnesota swine evaluation stations.

FIRE DESTROYS PLANT

CORVALLIS, ORE.—The Oregon Seed Co. was completely destroyed by fire recently. Cause of the fire was unknown. The plant, including a warehouse, was filled with grains and seeds. All processing equipment went up in flames. Loss was estimated at about $500,000.

Whitmoyer 'Synergistic' Coccidiostats Patented

MYERSTOWN, PA.—U.S. Patent Nos. 2,823,160, 2,823,161 and 2,895,874 have been granted on Whitmoyer coccidiostats, according to C. W. Whitmoyer, president of Whitmoyer Laboratories, Inc.

Mr. Whitmoyer said: "Whitsyn was the first coccidiostat on the market in which the principle of synergism (each drug in a combination is said to multiply the effectiveness of the other) is employed to potentiate coccidiostatic activity, and provide maximum therapeutic effectiveness without the need for a high drug concentration and its attendant hazard of harmful side reactions.

"The Whitmoyer work indicates this is accomplished by a unique chemotherapeutic response attained through a multiple bio-chemical blocking which potentiates the coccidiostatic activity of the drugs in Whitsyn.

"The occurrence of synergism in medicine is so rare that a huge volume of conclusive evidence was required to convince the patent examiners that coccidiosis - controlling synergistic activity existed in Whitsyn.

"The substantiating data, on which the Whitsyn patent was finally granted, included detailed reports on laboratory experimental work and the affidavits of reports of actual field trials developed during Whitmoyer's basic research program. Confirming scientific articles published in scientific journals by workers in the British Department of Agriculture, reporting their findings on the synergism that existed in Whitsyn-type combinations of a pyrimidine compound and a sulfa drug, were also included in the data submitted."

The Whitsyn patent, applied for in 1953, as now granted, gives the Whitmoyer firm the "exclusive use of certain combinations of pyrimidine compounds and sulfa drugs in poultry feed or water for controlling coccidiosis."

Mr. Whitmoyer said that of the entire series of coccidiostats developed in the Whitmoyer coccidiosis research project, three are currently commercially available: Whitsyn-S, a drinking water treatment; Whitsyn-5, a feed treatment, and Whitsyn-10, a feed preventive.

Association Secretaries To Meet Sept. 12-13

WASHINGTON—A special session on insurance programs for associations will be presented by a panel of three veteran secretaries Sept. 12-13 at the annual meeting of the Grain & Feed Dealers National Assn. in Minneapolis.

Secretaries from 55 grain and feed asociations, representing some 15,000 grain and feed firms in the U.S. and Canada, will meet in conjunction with the GFDNA annual meeting.

Secretaries to participate in the panel are: Clif Anderson, Farmers Elevator Association of South Dakota, chairman; Fred Sale, Indiana Grain & Feed Dealers Assn., Inc., and Howard Elm, Nebraska Grain & Feed Dealers Assn.

Other guest speakers will include: Madison Clement, president, GFDNA; George Wilkens, executive vice president, Minneapolis Grain Exchange; W. E. Glennon, president, American Feed Manufacturers Assn.; E. H. Sather, president, Central Retail Feed Assn., New Richmond, Wis., and Alvin E. Oliver, executive vice president, GFDNA.

Robert Skinner, secretary, Western Grain & Feed Dealers Association of Iowa, and Herb Sharp, secretary-treasurer, GFDNA, will discuss new ideas on association management.

Also, special equipment will be demonstrated showing how to quickly test protein content of wheat and a new method of testing moisture in grain samples.

J. M. Hall

R. F. Pevahouse

Allied Mills Appoints District Managers

CHICAGO—The appointment of two new district sales managers has been announced by E. D. Griffin, vice president in charge of sales, Allied Mills, Inc.

John M. Hall was promoted to sales manager of the Volunteer district, a new sales district, with headquarters at Jackson, Tenn. Robert F. Pevahouse has been employed as sales manager of the Bearcat district with headquarters in Harrisonburg, Va.

Mr. Hall came to Allied Mills in 1954 as poultryman in the educational service division, Libertyville, Ill., and for the past two years has been assistant district sales manager in the Colonel district in Memphis. He is a graduate of Oklahoma A&M with a major in poultry husbandry.

Mr. Pevahouse is a graduate of the University of Tennessee with a B.S.A. degree in animal husbandry and a master's degree in animal nutrition. He has had 10 years of experience in the feed business with Mountain City Mills Co., Chattanooga, Tenn., Gainer Mills, Inc., and Archer-Daniels-Midland Co., Springfield, Ill., where he was sales manager and division sales manager.

Alfalfa Meal Output For July Above 1958

KANSAS CITY, MO.—Alfalfa meal production in July was 256,400 tons, according to a preliminary estimate of the Kansas City grain division office of the U.S. Department of Agriculture. This figure is below the 268,200 tons of alfalfa meal produced during June, but greater than the July, 1958, total of 214,000.

Total production of alfalfa meal during the current season, May-July, was 660,900 tons, compared with the 593,000-ton total for the same period last year. Of the current season production total, 623,600 tons were dehydrated alfalfa meal, while 37,300 tons were suncured.

Stocks of alfalfa meal at producing plants July 31 amounted to 303,800 tons, of which 299,700 tons were dehydrated and 4,100 tons suncured. On the same date last year, the stock total was 277,200 tons.

Leading alfalfa meal producing state is Nebraska, which had an output of 111,100 tons during July. Other states producing more than 15,000 tons during the month are: Kansas, 26,300 tons; California, 22,800 tons; Colorado, 19,400 tons, and Ohio, 15,500 tons.

CATTLE

(Continued from page 1)

be substantially higher than this year, and much of the increase will be in steers and beef heifers for slaughter. (2) The potential slaughter thus will be considerably greater in 1960 than 1959. How much of the potential actually develops constitutes the key element in price prospects. The likelihood is for a moderate increase and the beginning of a price decline but for no drastic changes.

Numbers of cattle on farms are being increased some 5 million head this year, to a new high of 102 million next January. The cyclical upswing will likely last several more years.

Henceforth, the industry will operate under the shadow of a possible bulge in cattle marketings and a break in prices. But the prospect is for gradual rather than sharp changes.

More Steers, Beef Heifers in Herd: By the end of 1959, steer and beef heifer numbers on farms may be about 25% greater than three years before. This big increase in steer and heifer inventory makes it likely that cattle marketings will increase considerably in 1960. The increase the past two years in beef calves is 15 to 20%, for all cows 3 to 5% and for all cattle and calves 9 to 9.5%.

Calf Crop: While prospective inventories point to a larger slaughter of steers and heifers, and of all cattle, in 1960, the calf crop is not yet large enough to create a great "pressure from below." The 1958 calf crop was only 2% greater than a year before.

Carcass Weights: Dressed carcass weights of cattle slaughtered the first half of 1959 were heavy, averaging 40 lb. above a year earlier. In 1960, fed cattle will again make up a large part of all cattle slaughtered, so average carcass weights may again be heavy. In the January-June period, some 50% of the slaughter was in fed steers and heifers.

Cow Slaughter: Cow slaughter the first half of 1959 was 22% below a year before. In the second half it may about equal a year earlier. Unless severe drouth occurs next year, only a moderate increase in cow slaughter is likely.

Cattle Prices: All factors considered, it is likely that slaughter will increase enough to initiate a cyclical decline in cattle prices in 1960. Strong consumer demand for beef will moderate any decline, but big pork supplies will put pressure on prices. Price declines aren't likely to be great enough to have a major effect on incomes from cattle.

Feeder Prices: Prices of fed cattle edged slowly downward this summer and in early August were $3 cwt. below the April high. Feeder cattle prices also trended lower. If prices continue to decline seasonally, by mid-fall they will be below a year earlier.

Feeding Profits: How much faster prices decline this fall will have a lot to do with feeding profit prospects this winter. In the last three years, continuous rises in prices of feeder cattle could be accepted because fed cattle prices also were on an uptrend. Prices of fed cattle have drifted lower this summer, and profits in feeding for summer sale were less than from spring sale. If feeder prices drop this fall to a little below last year, chances for average profits in feeding would be improved. A price margin sufficient to cover costs might then be realized next year, even if fed cattle prices fail to increase, or decrease somewhat.

Feed Prices: Feed will again be abundant, and prices of feed in the coming feeding season won't average much different from the past season. Hay prices are likely to average a little higher.

Heavy Volume: Cattle feeding continues at a record volume. On July 1, 13 major feeding states had 10% more cattle on feed than a year earlier. Marketings of fed cattle will almost certainly remain large this fall and winter.

Prices, however, may be influenced not so much by the supply of fed cattle as by the number of non-fed cattle marketed. Reduced numbers of grass steers and heifers and of cows marketed have underpinned the higher average price of fed cattle so far this year. It is possible that enough yearling steers and heifers will be marketed off grass so that slaughter of those classes will increase. If so, fed cattle will be prevented from advancing. Prospects are for fed cattle prices to continue relatively stable, but with little chance for a fall rise. Prices of choice and prime grades are likely to hold up better than lower grades this fall and winter.

● No. 6 in a series of conversations with Gooch Feed dealers

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Part 2

Review of Poultry Science Papers Presented on Nutrition, Related Subjects

By Dr. J. R. Couch
Texas A&M College

EDITOR'S NOTE: This is Part 2 of the review of the 1959 nutrition sessions of the Poultry Science Assn. meeting held at Iowa State University, Ames, Aug. 4-7, prepared by Dr. J. R. Couch, professor in the departments of poultry science and biochemistry and nutrition at Texas A&M College. Seventy five nutrition papers were presented. In addition to the 75 nutrition papers, subjects covered in other sections of the annual meeting of interest to the feed industry are summarized in this review series. Part 1 of this review appeared in the Aug. 22 issue of Feedstuffs, and Part 3 (final section of the series) will be published in the Sept. 5 issue.

FACTORS AFFECTING THE METABOLIZABLE ENERGY VALUES OF FATS AND OTHER FEED INGREDIENTS AND THE DIGESTIBILITY OF FATS—Five papers were presented which will be treated under this section. The first of these was concerned with the metabolizable energy values of different types and grades of fat used in practical chick diets and was presented by Dr. O. H. M. Wilder of the American Meat Institute Foundation, Chicago.

Dr. Wilder and his group studied the apparent metabolizable energy value of various types and grades of fats with a basal diet made up of ingredients commonly used in poultry feeds. Several of the same fats were used in practical type broiler formulas to determine the effect on growth and feed efficiency under these conditions.

It was immediately apparent from the presentation that the metabolizable energy values varied considerably. The following values are given from Dr. Wilder's paper: Choice white grease, 4054-4332; yellow grease 4405; brown grease 4213-4327; poultry grease 3640-4728; bleachable fancy tallow 3920; No. 2 tallow 3982; hydrolyzed fat, 2994-3666; corn oil 4097 calories metabolizable energy per pound.

The addition of p-methyl tolyl carbinol to the choice white grease resulted in an apparent increase from 4069 to 4814 calories per pound of fat. The performance of the fat samples when used at a 10% level in practical diets did not always parallel the metabolizable energy values.

Some of the low values from the metabolizable energy mentioned above may be explained on the basis of the level of impurities in the sample. The high values obtained for certain samples suggest that metabolizable energy values are inadequate to judge the full contribution of these fats in nutrition. Dr. Wilder stated that the metabolizable energy value of a fat was accurate only for the diet in which the fat was used wherein the metabolizable energy content was determined. Dr. Wilder stated further that the M.I.U. value of a fat was a good measure to be used in attempting to ascertain the nutritive value of the fat for use in poultry feeds.

Second Paper

The second paper in this series was presented by Dr. I. R. Sibbald, Ontario Agricultural College, Guelph, Ontario. Dr. Sibbald started the discussion by stating that the usefulness of metabolizable energy values of ingredients in the formulation of poultry feed formulas was dependent upon two assumptions: First, that the metabolizable energy value of an ingredient was independent of the other dietary components, and secondly, that the value remained relatively constant irrespective of the age or type of bird to which the ingredient was fed. If either of such assumptions was invalid, then there could be a number of metabolizable energy values for each ingredient.

From the results presented by Dr. Sibbald, it was concluded that the metabolizable energy content of several ingredients differed significantly when fed to birds three weeks of age and to others seven weeks of age. Further, the metabolizable energy content of corn varied significantly when combined with three different basal diets. However, the metabolizable energy value for wheat did not change.

Dr. Sibbald and the Ontario Agricultural group suggested that a further study of the factors influencing the metabolizable energy values for feed ingredients is necessary before a survey of the metabolizable energy content of poultry feed ingredients is undertaken.

Corn Oil and Tallow

Dr. L. M. Potter, University of Connecticut, presented work on the comparative energy values for corn oil and tallow.

The metabolizable energy contents of corn oil and tallow were found to be 9.04 and 7.28 calories metabolizable energy per gram, respectively. It was apparent from this presentation that corn oil had a higher metabolizable energy value than did tallow. This is in agreement with the earlier reports of Dr. F. W. Hill and co-workers of Cornell University.

Dr. Potter conducted additional experiments using 0, 5, 10 15 and 20% of corn oil and tallow in experiments with eight-week-old broiler chicks. It was concluded that the calories per gram for corn oil and tallow were more closely related to the metabolizable calories per gram of diet than to the per cent fat in the diet when feed conversion was the criterion used to measure the response, whereas the weights were only slightly or not affected by dietary treatments. Dr. Potter also reported that calcium did not interfere with the values given for corn oil and tallow.

Effect of Stilbestrol and Corn Oil

Dr. L. B. Carew, Cornell University, reported on a study of the "Effect of Diethylstilbestrol and Corn Oil on Efficiency of Energy Utilization by the Chick."

Two and one half percent and 22½% corn oil were used to make up the two different energy levels. Dr. Carew concluded that diethylstilbestrol produced an increase in the fat content of the carcass but that such increase was due to the increased energy intake and not to any effect of diethylstilbestrol per se. As determined by the total energy increase in the carcass, the efficiency of energy utilization was increased by corn oil but diethylstilbestrol had no effect.

Digestibility of Dietary Fats

Dr. M. R. Fedde, University of Minnesota, reported on factors affecting the digestibility of certain dietary fats in the chick.

The effects of age, restricted feeding, dietary ox bile and calcium level were studied on heavy crossbred male chicks reared in conventional batteries. Ten and 20% levels of fat were used and the fat was incorporated into an adequately supplemented corn-soybean oil type diet. The digestion coefficients did not differ at the different levels of fat fed and were 91 to 92% for safflower oil, corn oil and lard whereas beef tallow had a digestion coefficient of only 76%.

There was a definite effect on the digestion coefficients of beef tallow with age. The digestibility of beef tallow increased from 53% at one week of age to 80% at 12 weeks of age, whereas no such increase in the digestibility of the other fats occurred. A significant increase in the digestibility of tallow at four weeks of age was apparent when the ox bile levels exceeded 0.1%.

Restriction of the feed intake produced no change in the digestibility of the tallow. However, lowering the dietary calcium level to .33% during the digestion trial caused an increase in the digestibility of the beef tallow from 77% for the control to 91% for the low calcium diet. There was a slight decrease in the digestibility of tallow when the dietary calcium level was increased to 3%. The digestibility of the tallow with the 3% calcium level was 71%.

Opposition to Change

A great deal of discussion time was given to the series of papers concerned with metabolizable energy and the utilization or apparent digestibility of fats. There were those in the audience who were quite definitely opposed to changing from the presently used productive energy values to metabolizable energy values. Attention is directed to the paper presented by Dr. Sibbald, reviewed above.

There were certain points against the use of metabolizable energy values for fats presented by Dr. Wilder of the American Meat Institute Foundation. Other points in this regard were concerned with the effect of various factors on the metabolizable energy values.

It was apparent from the discussion that it will be some time before a complete changeover is made from productive energy values to metabolizable energy values in the formulation of practical poultry feeds.

Tissue Cholesterol in Chicks

Dr. R. L. Svacha presented data from the Texas station on the "Effects of Fats and of Lipotropic Agents on Tissue Cholesterol Levels in Broiler Chicks." Dr. Svacha is presently the nutritionist for the Poultrymans Cooperative Assn., Los Angeles.

From the results of the work by Dr. Svacha, with broiler strain chicks and using a practical type diet, it was found that the cholesterol content of the serum, liver and aorta was increased by feeding cholesterol. This was especially true in the presence of fat. The feeding of butterfat increased the cholesterol concentrations still further. The latter could be lowered by adding a high level of choline to the diet illustrating the effect of this lipotropic agent in reducing the cholesterol concentration in the serum, liver and aorta.

Other fats studied included animal tallow, corn oil and margarine. Choline had no effect in reducing the cholesterol content of the serum, liver and aorta when these fats were included in the feed formulas. There was a high correlation between the serum and liver cholesterol levels and the per cent serum β-lipo protein values.

ENERGY AND PROTEIN REQUIREMENTS FOR POULTRY STARTING DIETS—W. J. Owings, Iowa State University, presented this paper and used protein levels ranging from 23 to 32% with productive energy levels varying from 650 to 1,000 Calories per pound in five experiments with Broad Breasted Bronze turkey poults.

Mr. Owings concluded that increasing the energy content usually increased growth and nearly always improved feed efficiency independent of the protein level. The Calorie/protein ratio was considered to be of relatively minor importance as compared to simple protein and energy effects.

The writer has noted in articles during the past three years that Calorie/protein ratios are to be used only as guides in the formulation of feeds. Such Calorie/protein ratios have been listed in a number of instances in the past and research data has repeatedly been presented showing that it is not necessary to follow to the letter, the precise Calorie/protein ratios which are given from any laboratory.

PROTEIN AND AMINO ACIDS IN CHICK NUTRITION—Ten papers were presented in this field, the first of these by Dr. G. A. Donovan, research division, Chas. Pfizer & Co., Inc., Terre Haute, Ind.

The subject of Dr. Donovan's presentation was the lysine requirement of the chick and interrelationships of lysine and methionine. According to the data presented, the lysine requirement of broiler type male chicks between 12 and 20 days of age was determined with lysine deficient diets containing 923 or 1018 Calories productive energy per pound and with 18.5% protein. Under these conditions the lysine requirement was found to be 1.04 and 1.12%, respectively, on the low and high energy diets. Dr. Donovan concluded that the lysine requirement increased as the level of

OPERATIONS BEGUN—Foxbilt, Inc., Des Moines, Iowa, has begun operation of its new feed plant in Lone Rock, Wis., according to E. L. Fox, president of Foxbilt. The plant was purchased earlier this year and has been expanded and remodeled to include pelleting equipment, bulk storage and bulk handling. Capacity of the feed plant is expected to be 40 tons per day, with a 7-ton per hour capacity for the pellet mill.

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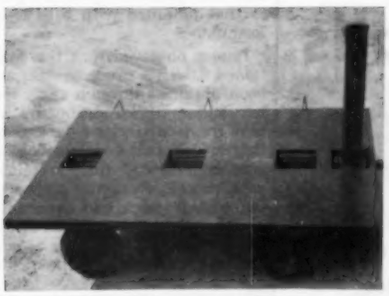

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energy and the level of protein were increased. It was estimated during the presentation that high energy diets require between 9 and 18% more lysine than low energy diets for maximum growth.

The relationship between dietary lysine and methionine requirements of chicks between 7 and 28 days of age was investigated for a diet containing 23% protein and 989 Calories productive energy per pound. Results obtained indicated that there was not a simple linear relationship between the lysine and methionine requirements.

Utilization of Amino Acids

The next paper in this series was presented by Dr. R. V. Fell, Louisiana State University, and was concerned with the "Utilization of D and L Amino Acids in Liquid and Dry Diets." Chemically defined water soluble diets were force-fed to chicks of varying ages. All diets tried were toxic to day-old chicks except those containing some natural material of high molecular weight. The toxicity was associated with the amino acid mixture in water solution. A common symptom preceding death was a disturbed water balance associated with tissue dehydration.

These workers also reported on the ability of the chick to utilize the D isomer of nine amino acids with solid diets. Both isomers of methionine and phenylalanine were utilized equally well. The D form of leucine, threonine, tryptophan and isoleucine failed to support growth when fed alone, but when over 50% of the requirement was supplied in the L form the D isomer of these four amino acids was quite effective in supplying the remainder of the requirement. D-Valine supported some growth increasing in effectiveness in the presence of the L form. High levels of D-Valine were toxic. Throughout this discussion D lysine supplied in a racemic mixture depressed the growth promoting capacity of the L form. At the levels used, D histidine had no effect on growth whether fed alone or in a racemic mixture.

Crystalline Amino Acids

Dr. Middendorf, University of Maryland, reported on studies on "Partial Replacement of Dietary Protein with Crystalline Amino Acids."

Chick starter rations composed primarily of corn and soybean oil meal were diluted with a starch-corn-oil-mineral-vitamin mixture. These workers concluded that the addition of amino acids in the calculated order of limitation and the omission of one amino acid from the mixture of essential amino acids did not indicate the order of biological limitations in the basal diets.

Amino Acid Balance

Dr. K. H. Maddy, Monsanto Chemical Co., St. Louis, reported on the "Importance of Amino Acid Balance in Low Protein Broiler Starters." Dr. Maddy used a 21% protein formula and supplemented this formula with methionine, glycine, arginine and lysine and produced growth equivalent to that obtained with a 24% protein formula.

It was observed that the corn contained 8.5-9.5% crude protein and had been obtained through early harvesting and artificial drying. The protein from this corn was higher than that which had been used in earlier studies (7-8% crude protein). The corn protein from the higher protein ingredient which had been harvested early and artificially dried either contained some non-protein nitrogen or the amino acids in the protein of

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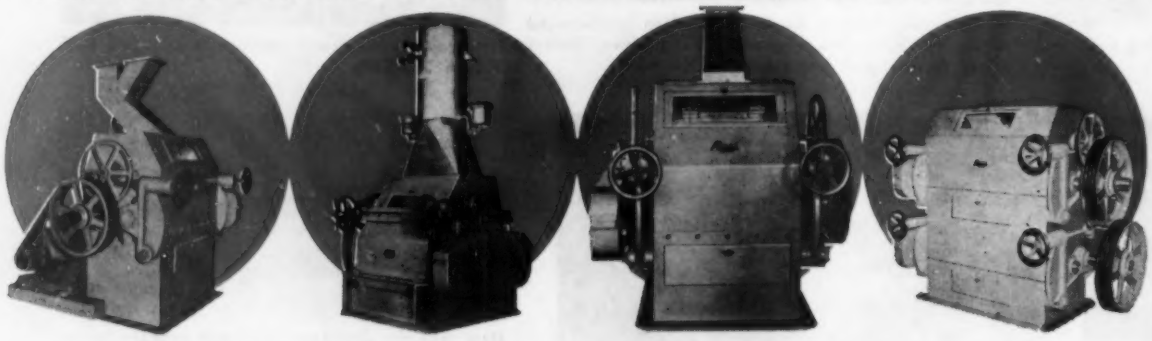

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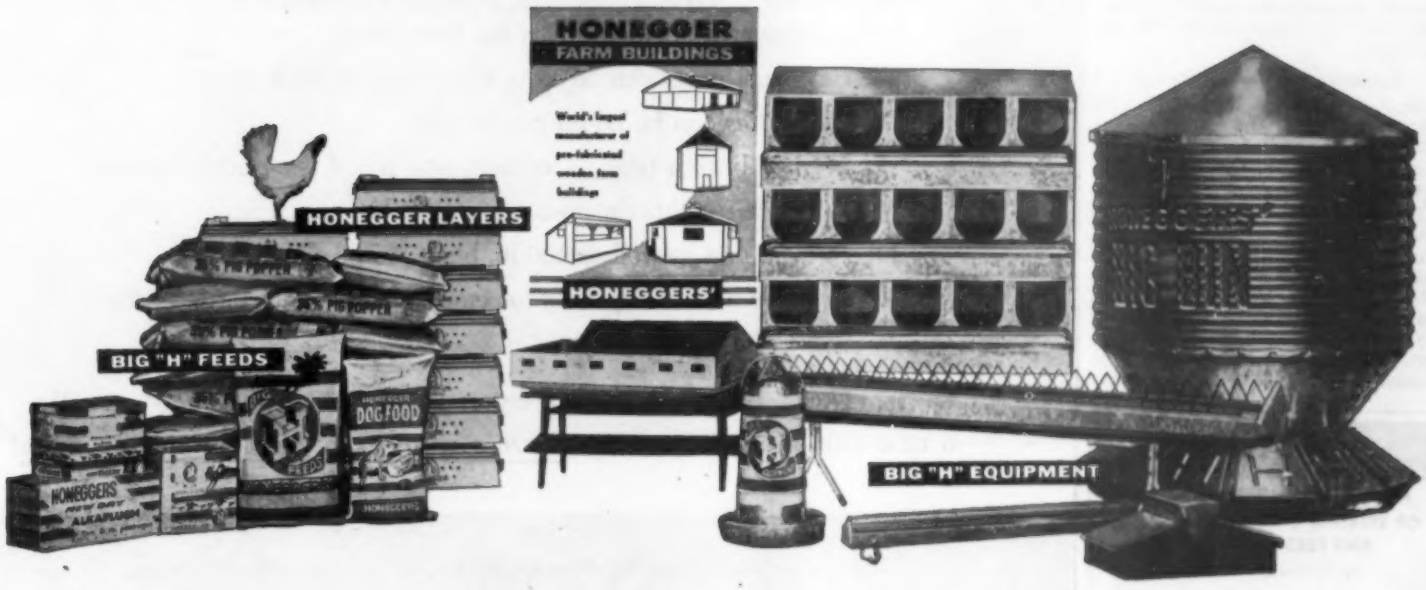

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this ingredient were not biologically available.

Dr. Maddy pointed out in the presentation that it was wise for the feed nutritionist to use a figure in the range of 7-8% protein for corn in making up poultry feed formulas.

Metabolism of Methionine

Dr. E. C. Miller, U.S. Department of Agriculture, Beltsville, Md., reported upon the "Metabolism of Methionine by Single Comb White Leghorn and Australorp Chicks." It was observed that both of these breeds converted methionine to cystine adequately to meet the biological needs of the chick for good growth. Radioactive L-methionine S^{35} was used in studying the utilization of methionine for cystine synthesis with both breeds. Results from this study illustrated that the Single Comb White Leghorn converted methionine to cystine more efficiently than the Australorp chick. However, in view of the good growth obtained with methionine supplementation of the basal diet, which had a low-cystine content, it would appear that the conversion of methionine to cystine was adequate with both breeds.

Chick Growth, Feather Tyrosinase

W. J. Owings, Iowa State University, reported on "Protein Source and Amino Acid Effects on Chick Growth and Feather Tyrosinase Activity."

Mr. Owings stated that the arginine requirements of Vantress-White Rock chicks with a diet containing approximately 24% protein varied with the protein source. Zein and casein were used as supplementary proteins in these studies. Combining the casein with the zein improved growth over that produced by a zein diet but there was no improvement in growth by increasing the arginine level from 1.2 to 1.8%.

Mr. Owings also used Drackett protein in his studies. New Hampshire chicks fed a zein-casein diet (24% protein) supplemented with amino acids exhibited depigmented feathers on low lysine diets. The depigmented feathers were shown to possess a low tyrosinase activity. It was suggested that one way in which a lysine deficiency might cause feather depigmentation, which often occurs in Broad Breasted Bronze turkeys maintained on a low-lysine diet, was by inhibiting the activity of the feather tyrosinase and thus inhibiting the formation of the melanine pigment necessary for the pigmentation of the feathers.

Essential Amino Acid Level

Dr. J. O. Anderson, Utah State University, presented the paper on the "Effect of Essential Amino Acid Level in the Diet on the Chick's Requirement for Specific Amino Acids."

The results suggested that the requirement for each of the essential amino acids was influenced by the level of the other essential amino acids in the diet. This simply means that the amino acid composition of the protein which permits the best performance of the chick cannot be defined in terms of minimum quantities of each of the essential amino acids. These results confirm studies which have been reported earlier.

The next paper presented was from the laboratory of Dr. H. D. Branion, Ontario Agricultural College, and was concerned with the effect of "Dietary Protein Level on the Concentration of Free Amino Acids in the Blood Plasma of Chicks."

Protein levels used were 8.5, 15, 21 and 30%. With the diet containing only 8.5% protein, the concentrations of the amino acids in the plasma were depressed below normal levels. Other levels of protein produced varying concentrations of the amino acids in the plasma.

Supplementation

The writer reported for Dr. R. W. Lewis, Texas Agricultural Experiment Station, Prairie View, on the "Feather Meal, Methionine and Cystine Supplementation of Broiler Diets."

Calorie/protein ratios in the starters were maintained at 42/1 and for the finishers at 53/1. The starters contained an energy level of 1072 Calories productive energy per pound and the finishing diets were calculated to contain 1128 Calories per pound.

This work is strictly of a preliminary nature. Results were inconclusive and variable.

One of the most interesting points in the report was the fact that in one study the supplementation of the feather meal diet (feather meal used at a 2.5% level) with methionine produced no response, where the cystine supplementation of the same diet produced a response in growth. Further work is needed to elucidate these observations.

Hydrolyzed Feather Meal

Dr. J. F. Stephens, Tennessee Agriculture Experiment Station, Knoxville, reported on "Fractions of Hydrolyzed Feather Meal in Broiler Diets."

Dr. Stephens stated that feather meal contained an inorganic growth factor which was apparent when feather meal ash was included in diets containing 6.2% fish meal. This indicates that the inorganic fractions from feather meal which supported growth must be different from the organic fish factor.

Diets containing ether extracted feather meal also supported larger weight gains than did the feather meal control diets. The observation to the effect that feather meal contains an inorganic growth factor is a confirmation of work which has been presented heretofore.

ANTIBIOTICS IN CHICK AND LAYING HEN NUTRITION — The first of these papers was presented by Dr. C. W. Carlson, South Dakota State College. Dr. Carlson used oxytetracycline at a level of 10 mg./lb. alone and with other additives, including glucosamine at 24 mg./lb., reserpine at 1 mg./lb. and 0.25% Vi-

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1000 USES
Has 1000 uses — always in demand on the farm (popular with farm wives, too!)

gofac. Several combinations of these four additives were also studied.

The only positive results obtained were an improvement in egg production and feed efficiency when oxytetracycline and glucosamine were used separately. A further improvement was noted when these two products were combined in the same formula. Reserpine and Vigofac were without effect as supplements to the laying diet in this study.

Intermittent vs. Continuous

Dr. J. E. Savage, University of Missouri, reported on a comparison of the continuous and intermittent feeding of antibiotics to laying hens.

From 120 to 200 birds were used per pen. The feeding system consisted of a 55% mash and a 45% grain feeding program. The antibiotic supplement was added to the mash at a rate of 200 gm. per ton which resulted in an intake of approximately 110 gm. of the antibiotic per ton of feed.

The intermittent feeding was carried out by feeding the antibiotic supplemented mash only for the first seven days of each 28-day period. The average egg production for a 40-week experimental period was 68% for the control group, 69.2% for the intermittent group and 70.5% for the continuous antibiotic supplemented group. The difference due to the intermittent treatment was not significant.

The increased egg production (2.5%) for the continuously fed antibiotic group was significant when the data were treated statistically at the 5% level. Birds in the continuously fed antibiotic group were significantly heavier in body weight.

Single Sources vs. Combinations

Dr. Paul E. Sanford, Kansas State University, reported on a series of investigations on the comparison of feeding single sources or combinations of antibiotics to laying hens. The antibiotics fed included chlortetracycline, zinc bacitracin and procaine penicillin, combinations of these three antibiotics, and also furazolidone (nf-180).

Dr. Sanford concluded that the feeding of 10 gm. per ton of a single source or combinations of two antibiotics to floor pen layers resulted in a non-significant increase in egg weight, shell percentage, hatchability, feed conversion, maintenance of body weights and no noticeable improvement was noted in the interior quality of the eggs nor in the appearance of blood spots or meat spots. These studies were conducted with floor pen layers.

Similar results were also obtained with caged layers. Floor layers laid significantly more eggs than caged layers according to Dr. Sanford's report, but caged layers laid significantly larger eggs. These data also confirm earlier investigations.

A significant increase in the egg production of floor layers was obtained by supplementing the Kansas State University basal layer ration with a combination of two antibiotics at the level of 10 gm. per ton when compared with 10 gm. of a single source of an antibiotic or the non-supplemented control diet.

Other Antibiotics

Dr. D. I. Gard reported on the "Effects of Adding Hygromycin B, Tylosin and Procaine Penicillin on Chick Growth and on Layer Performance."

Tylosin base significantly improved the growth of broiler chicks over penicillin when added to the diet at the 4 gm. per ton level. In a 112-day caged layer test results were negative with regard to hen day production and feed conversion when tylosin or three different levels of hygromycin were added to a caged layer formula.

Low Levels of Antibiotics

Dr. W. J. Monson, The Borden Co., Elgin, Ill., reported on the "Lack of Effect of Low Levels of Certain Antibiotics in Improving Growth and Feed Efficiency of Chicks."

According to Dr. Monson's report, recent studies at the laboratory of the Borden Co. at Elgin, have shown that chicks no longer respond to low levels of some antibiotics.

The antibiotics studies included procaine penicillin, bacitracin, oleandomycin and atterimin. Zinc bacitracin and a combination of zinc bacitracin and procaine penicillin gave a small antibiotic response in one test. The latter differences were of doubtful significance because of the variation between duplicate pens. A high level of procaine penicillin (30 gm. per ton) produced a growth response of one battery test but not in a floor pen test.

Dr. Monson stated in concluding the paper that the increased number of stress factors in a practical broiler operation may still make it possible to obtain an antibiotic response in the field.

Results reported by Dr. Monson agree with those obtained in the de-

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GOLF OUTING—Shown are several scenes at the Chicago Feed Club's recent golf outing in Milwaukee. In the first picture (left to right) are: George E. Fuhr, Spencer Kellogg & Sons, Inc.; Richard L. Kathe, director of public relations, American Feed Manufacturers Assn.; Donald C. Sinclair, Sinclair Mineral & Chemical Co., and Joe McDermott, Kraft Bag Corp. In the second picture (left to right) are: Stanley G. Smith, Peerless Lithographing Co.; L. E. Graves, General Foods Corp., Kankakee, Ill.; B. J. Free, Badger By-Products Co., Inc., Milwaukee, and Scott Manley, General Foods Corp. Don McGowan and Harry Rafferty, both of Hudson Pulp & Paper Corp., are shown in the third picture, and in the last picture are (left to right): Hiram Hegge, Wisconsin feed mill operator, and E. G. Schmidt, Chas. Pfizer & Co., Inc., Chicago. (Photos by Truman Fowler.)

partment of poultry science of the Texas station where it has been impossible to obtain a growth response in batteries for at least two years. Likewise, it has been impossible to obtain a growth response at the field substation supervised by Dr. A. A. Camp near Gonzales, Texas. Responses should certainly be obtained at the latter location since this station is located in a broiler production area.

Dr. L. C. Matterson, University of Connecticut, reported on the "Apparent Loss of Antibiotic Response in Chick Growth Studies."

Several investigations, according to Dr. Matterson, suggest that the antibiotic growth response of chicks is being lost where the same antibiotics are fed under the same conditions or in the same environment over an extended period. There have also been suggestions to the effect that the antibiotic response is dependent in part on the makeup of the formula.

Dr. Matterson tested these hypotheses in three experiments and in one instance used the original 1951 formula where good results were produced with antibiotic supplementation. The antibiotics studied included procaine penicillin, zinc bacitracin and Aureomycin at a level of 10 gm. per ton. The percent growth responses over the basal in all three experiments were considerably less than those reported in the 1951 studies. This supports the theory that the antibiotic response is gradually decreasing.

In one experiment, the response over the basal of the antibiotic fed birds on the 1951 formula were equal to those obtained in 1951 at the end of one week, but decreased steadily to 0 at eight weeks of age. This report adds further data to the theory that the antibiotic growth response is disappearing in the laboratory.

Antibiotic Comparison

Dr. A. C. Wiese, University of Idaho, reported on the comparison of several antibiotics for chick growth using a corn-soybean oil meal broiler basal diet.

The antibiotics were added to the basal diet at levels of 2.5, 5, 10 and 20 parts per million. The antibiotics tested included penicillin G, penicillin V, erythromycin and spontin. Both of the latter are new antibiotics not presently being used routinely in feed formulas.

Results obtained in these studies were somewhat variable. The average growth response for all levels of erythromycin tested were 6.1, 4.9, 7.7 and 7.1% for the four experiments, while spontin produced an 8.2% response in one trial. From the results it would appear that erythromycin and spontin may be useful supplements to chick broiler formulas. This would be particularly true when an antibiotic had been used as a supplement in a particular environment for a long period of time, according to Dr. Wiese.

Results obtained in the writer's laboratory have been somewhat variable with erythromycin; at times a positive growth response has been ob-

(Turn to NUTRITION, page 82)

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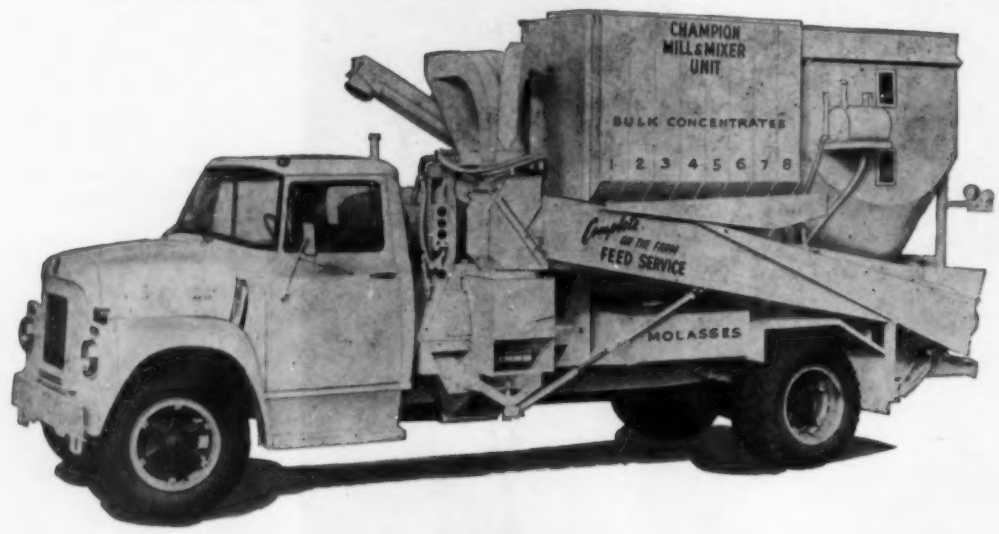

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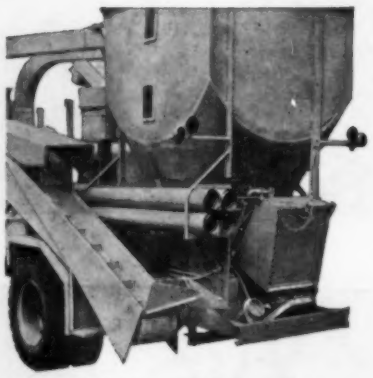

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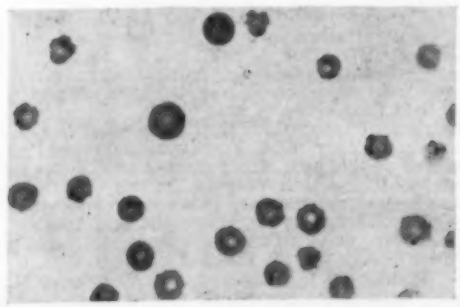
Anaplasmosis

Anaplasmosis is an infectious disease of all breeds of cattle and is characterized by anemia, fever and the appearance of anaplasma bodies on or near the margin of the red blood cells during the active phase of the disease. The bodies stain a dark blue when blood smears are prepared with Giemsa's or Wright's stains as illustrated below. The incubation period in experimental cattle varies from 21 to 45 days. This period under field conditions probably is 30 to 150 days or more. Anaplasmosis is recognized as a major cattle disease.

Economical losses . . .

It costs stockmen of the United States $3.4 billion in estimated production losses and $3.5 million in mortality losses annually (1). Mortality has been reported as high as 50 per cent of the infected animals (2). Cattle which recover from anaplasmosis are immune to the disease but are permanent carriers. Anaplasmosis has been referred to as gall sickness, bovine malaria and gallziekte. It was probably introduced into the United States by the Spaniards along with Texas fever. The disease is not transmissible to man, but it has been reported that other ruminants, such as the deer, elk, antelope, buffalo, camel, black wildebeest, duiker, blesbok and goat are susceptible (3). It has been recently recognized in sheep in the United States (4).



Photomicrograph of peripheral blood smears treated with Giemsa's stain showing erythrocytes containing anaplasma bodies. Magnification is 1,400 times normal.

Anaplasmosis was first observed in this country in 1893 during the investigational studies of Texas fever (3). However it was not recognized to be a separate disease entity at this time but the anaplasma bodies were described and were considered to be a stage in the life cycle of the causative agent of Texas fever (4). In 1910 an African investigator presented evidence that an unrecognized disease of cattle had been identified (5). It was observed that this malady was characterized by the presence of bodies on or near the margin of the red blood cells. These bodies have been considered to be protozoan and the cause of the disease. Because they were assumed to be the cause of the disease and due to their location and the fact that they were without cytoplasm, they were designated **Anaplasma marginale** and the disease anaplasmosis. **A. marginale** is the only species known in the United States, while it has been found with **A. centrale** in Africa. The bodies vary in size from 0.2 to 0.9 micron (25,000 microns per inch).

Anaplasmosis was first recognized in the United States in 1913 (6); however, the infection was proved to coexist with Texas fever.

It was first reported, uncomplicated with Texas fever, in 1926 when it was observed in southeastern Kansas (7). In 1928 (8) it was reported in California and the investigator indicated that he had diagnosed anaplasmosis in California as early as 1925. In 1932 four forms of the disease —peracute, acute, subacute and chronic—were described (9). The chronic form appears as an aftermath of acute cases that are not treated or treated late in the course of the disease. Young calves develop the mild form, however, if such animals are splenectomized and then administered infective blood the acute or peracute form develops.

Geographical distribution . . .

Anaplasmosis is considered a tropical or semitropical disease but it also occurs in more temperate areas. It has been reported in Asia, Asia Minor, southern Europe, most districts of Africa, Australia, South America and Hawaiian, Philippine and Antilles Islands. Anaplasmosis has been recognized in 38 of 48 United States. These include: the southeastern, Gulf and southwestern states; and Washington, Oregon, California, Idaho, Montana, North Dakota, South Dakota, Nebraska, Kansas, Wyoming, Colorado, Utah, Nevada and Illinois.

The disease is most troublesome in states or in certain areas of states where the natural blood sucking vectors such as ticks, flies and mosquitoes abound. Anaplasmosis has been experimentally transmitted from infected to susceptible bovine hosts by bites of many species of ticks, by horseflies and stable flies, and by mosquitoes. With flies and mosquitoes, transmission is mechanical. Ticks ingest infected blood and transfer the infection to the susceptible host animal when feeding is resumed. Perhaps in certain areas more game animals, such as deer, are carriers of anaplasmosis than is now realized and in such areas may be a major factor in perpetuating the disease. The interstate shipment of cattle has apparently facilitated spread of anaplasmosis within the U.S. in recent years.

Transmission by insects . . .

Research has shown that many blood sucking insects are capable of transmitting anaplasmosis. It is quite probable that all of these, and other blood sucking insects not yet proven experimentally, transmit the disease in the field. It has also been reported that horn flies, biting gnats, black flies and chrysops may spread anaplasmosis mechanically under given epidemiological conditions (10). It is known that some epizootics are not as acute as others (11). It is difficult to totally assign this to the variance in the resistance of susceptible cattle. It is possible that there are separate strains of the causative agent, or that the transmitting insects influence the virulence of the causative agent (12).

The stable fly, nine species of horse flies (tabanids), three species of mosquitoes and eighteen species of ticks have been proven experimentally to transmit anaplasmosis.

It has been shown that certain ticks are capable of transovarian transmission of the infection through the ova to the succeeding larvae (13). It is evident that this occurs under natural conditions because the female tick, after feeding, leaves the host and lays her eggs. Next generation of ticks may then transmit the infection to susceptible hosts, cattle and wild game such as deer. The transmission by biting flies appears to be by a mechanical transfer of blood from infected to susceptible cattle. It has been reported that it is necessary that horse flies and stable flies feed on susceptible cattle within a period of a few minutes after having fed on infected cattle in order to transmit the disease. Experimental transmissions occurred only if the sucking mouth parts of the insect were wet with infective blood when feeding was begun on a susceptible animal.

Man has mechanically transmitted anaplasmosis by the use of contaminated needles or surgical instruments which were not cleaned and disinfected before repeating the procedures on susceptible animals. Transmissions of anaplasmosis have been reported following insanitary dehorning and also following the insanitary removal of horn tips (14 & 15). In addition to these modes of infection, transmission has been reported in the insanitary techniques of vaccination, bleeding for serological tests and castrating in

herds where anaplasmosis carriers were present.

Following use of clean and disinfected dehorning instruments for each animal, spurting of blood should be stopped after each bovine is dehorned. If this is not done, it is obvious that a carrier of anaplasmosis can, when in close proximity to susceptible members of the herd, contaminate the dehorning wounds of susceptible cattle. Another means of transmission of anaplasmosis is insanitary ear notching and possibly the use of contaminated nose tongs.

Cause is partially clouded . . .

The cause of anaplasmosis has generally been assumed to be **Anaplasma marginale,** a protozoan, although this never has been proved (3, 17 and 18).

The anaplasma body appears in the red blood cells 6 to 8 days before clinical signs become evident (8). During the febrile period of the disease as many as 77 per cent of the circulating red blood cells have been seen containing these bodies. Erythrocytes, or red blood cells, containing the bodies decrease in number abruptly, and rapidly, in untreated acute cases. This actually occurs 2 to 3 days before the total red blood cell count of the animal has reached its lowest value. This phenomenon suggests that the anaplasma body may be an inclusion body rather than the cause of the disease (19). The causative agent of anaplasmosis when released from the red blood cells during laboratory procedures dies very quickly. For this reason successful filtration studies of the causative agent are extremely difficult. However, one successful transmission of the disease by a filtrate has been reported (12).

It has been reported that the anaplasma body constitutes tightly packed submicroscopic elementary bodies, and that the parasite undergoes multiple division instead of binary fission (20). It has been recognized that an interference phenomenon exists between the causative agents of anaplasmosis and eperythrozoonosis in splenectomized cattle (21). The causative agent of eperythrozoonosis is classified as a rickettsia, and either does not cause clinical symptoms in nonsplenectomized cattle or if symptoms are produced they have not been recognized.

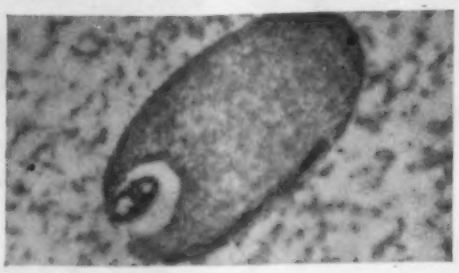
Recently erythrocytes containing anaplasma bodies have been treated with osmic acid, sectioned with an ultramicrotome and observed with the electron microscope. The sections were cut at a thickness of 1/20 to 1/40 micron. The body is seen as a clear space at the margin of the erythrocyte containing individual masses of osmophilic particulate matter (Figs. 2 and 3). It is probable that the larger bodies contain numerous such masses. The size of the particles is approximately 100 angstroms or 10 millimicrons. None of the organelles of a cell are seen in the bodies such as nucleus, mitochondria and endoplasmic reticulum. This suggests the causative agent of anaplasmosis may be a virus (22).

Investigations with Fe 59 . . .

Basically, anaplasmosis is of importance because it causes an acute anemia. It generally has been assumed that the anaplasma bodies rapidly destroy, or cause the rapid destruction, of the red blood cells of the infected bovine (3, 17, 18 and 23). However, there is no evidence of the destruction of, or hemolysis of, the erythrocyte, for example, hematuria, hemoglobinuria or hemoglobinemia, and the anemia is evidently caused by a paralysis or suppression of the erythropoietic function (12). Research with radioisotope Fe 59 shows that hematopoiesis is unchanged or suppressed (24). Histopathologic studies of untreated animals which relapsed with anaplasmosis after splenectomy showed depressed erythropoietic activity of the bone marrow (25).

In healthy animals there is a delicate balance between erythrocyte production and the disposition of the senile cells. Research with radioisotopes, Cr 51 and Fe 59 involving 24 calves shows the average normal life span of the bovine erythrocyte in the peripheral circulation is 22 to 26 days and, during acute anaplasmosis, the average life span of these cells is reduced to approximately 14 to 16 days (26). This research further indicates that the anemia of anaplasmosis is aplastic—primarily due to a suppression of the erythropoietic activity of the affected bovine.

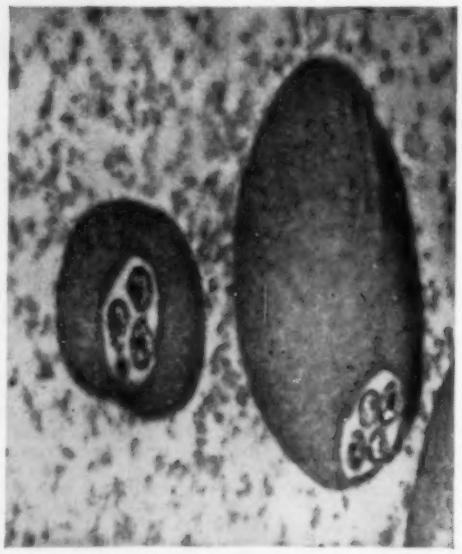
The suppression of the erythropoietic system during the early part of the disease is gradual and becomes more intensified as the disease progresses. This obviously exacts undue stress, wear and tear on the erythrocytes in the circulation as well as the new cells that are formed to meet the newly-created emergency. Therefore, the life span of the circulating erythrocytes is abbreviated and



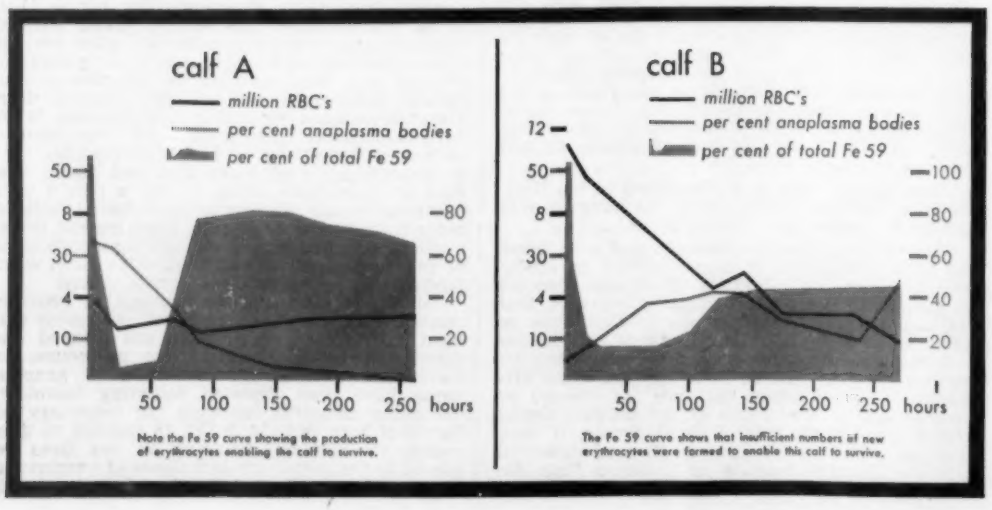
Electron micrograph of erythrocyte with one anaplasma body. Note the particles in the osmophilic mass.

they are disposed of. In animals with peracute or acute anaplasmosis a vicious cycle develops when erythrocytes are produced that do not live a normal life span.

Graphs A and B represent two young calves which were experimentally inoculated with anaplasmosis infective blood and subsequently administered radioisotope Fe 59 intravenously. Calves A and B were non-splenectomized. The values shown in the graphs are the total red blood cell counts per cubic millimeter of whole blood; the per cent of red blood cells containing anaplasma bodies and the total per cent of Fe 59 administered with plasma clearance of, and then the incorporation of the radioisotope in the newly formed red blood cells appearing in the peripheral circulation. These calves were administered anaplasmosis infective blood (to produce peracute or acute anaplasmosis in a non-splenectomized young calf) from a common carrier and on the same day. The normal erythrocyte count of these calves before being inoculated with infective blood was: calf A 8,000,000 and calf B 11,000,000. The incubation period of the disease in calf A was 11 days, and that in calf B was 17 days. Fifteen days after calves A and B were administered infective blood, each was inoculated intravenously with 4 microcuries of radioactive iron Fe 59. At this time (see graphs) calf A was in an advanced stage of anaplasmosis and had suffered a loss of 4,500,000 red blood cells per millimeter of whole blood. This indicates that the erythropoietic system of this calf was suppressed with the resulting anemia before Fe 59 was administered. Calf B had not suffered a reduction in red blood cells at the



Two erythrocytes in the above electron micrograph each contain one anaplasma body composed of four osmophilic masses in a clear space.



time the Fe was administered. Approximately 60 hours after the radioisotope was administered to calf A, his erythropoietic system was quite active and new red blood cells containing the Fe 59 were rapidly appearing in the peripheral circulation. It is noted that a maximum of 75 per cent of the Fe 59 was incorporated in the newly formed cells.

To the contrary, calf B was administered Fe 59 just before the anaplasmosis agent suppressed his hematopoietic system. Therefore, approximately 65 hours after radioisotope was administered only a few new erythrocytes were produced so that only 27 per cent of the radioisotope was incorporated in such cells. It is apparent that there was an insufficient number of new erythrocytes formed and and calf died.

Look for anemia . . .

The most important symptom of anaplasmosis is an acute anemia. When jaundice is present it appears to be due to an obstruction of the normal flow of bile from the gall bladder into the intestine and overproduction of bilirubin. The first three symptoms of anaplasmosis to appear are: abrupt decline in milk production in lactating cows, slight decrease in appetite and the intermittent inclination of the affected animal to recline and to stay apart from the herd. The temperature of the affected animal the first day these symptoms appear will be one to two degrees F. higher than the average temperature of other animals in the herd. This is especially so in the afternoon. At the time these symptoms appear the total red blood cell count will be approximately 4,000,000 per c.m.m. of blood. The average total red blood cell count of an adult bovine is 6,000,000. If the animal is affected with the acute form of this disease and not treated there will be a loss of approximately 1,000,000 red blood cells or more during each 24-hour period. If the bovine is affected with the peracute form of anaplasmosis it may die 24 to 36 hours after the first clinical symptoms appear. Very often animals with this form of the disease are found dead without being known to have been sick. As the anemia progresses in untreated cases the following symptoms appear: elevation of body temperature up to 107° F., accelerated pulse of 70 to 140 a minute, accelerated respiration of 60 to 80 a minute, followed by pale mucous membranes, complete or almost complete loss of appetite, atony of the rumen, constipation, jaundice (not seen in the peracute form), dry muzzle, weakness, marked dehydration and muscular tremors. Cattle unaccustomed to confinement and restraint and those of a nervous disposition are prone to "fight." This is due to an anoxemia of the central nervous system.

During the recovery period from acute anaplasmosis the following symptoms sometimes appear: dribbling of urine, drooling of saliva, excessive thirst and a mucopurulent nasal discharge. The latter probably due to secondary invading bacteria. Abortions may or may not occur in advanced pregnancies.

Diagnose in laboratory and field . . .

A tentative diagnosis of anaplasmosis is indicated when: symptoms of anemia and icterus occur in cattle over one year of age during the summer or fall months and if it is known that carriers of the disease are in the herd or area. A positive diagnosis of anaplasmosis can be made only when microscopic examination of stained blood smears of blood taken from the sick animal show anaplasma bodies in the erythrocytes. Usually when anemia and jaundice are first recognized the percentage of erythrocytes containing the pathognomonic anaplasma body will vary from one to 10 per cent even though four to six days previously this percentage would possibly have been 20 to 80 per cent. If the animal is not given attention for some days after these symptoms are observed, or if these symptoms are not observed for several days in all probability cells containing anaplasma bodies will not be found. With such a history anaplasmosis should be suspected and other cattle in the herd should be critically observed daily for the development of anaplasmosis.

Anaplasmosis in certain stages, may be confused with acute leptospirosis, bacillary hemoglobinuria and Texas fever (piroplasmosis). However, these diseases are accompanied by coffee- or blood-colored urine which is not present in anaplasmosis cases. It also may be confused with anthrax; and with parasitism and poisonings of the gastrointestinal tract which sometimes cause anemia and a jaundice.

Because erythrocytes with anaplasma bodies are rarely found in blood of cattle which have recovered from anaplasmosis such carrier animals cannot be detected by this means.

A complement fixation test for the detection of cattle affected with anaplasmosis has been developed (27). This test is reported to be 95 per cent efficient in detecting cattle that have recovered from experimental anaplasmosis (28 and 29). A field trial study of this test was initiated in a dairy herd (approximately 155 animals) in Louisiana in October, 1956. Four tests have been completed on this herd. The tests were run at approximately four month intervals. In this trial the test has been unreliable (30). However, in another field trial conducted in Maryland, the performance of the test was satisfactory since it permitted identification of all infected carriers (31).

It has been considered that the inoculation of anaplasmosis susceptible splenectomized calves with blood from cattle suspected to be carriers is a positive means by which to prove the anaplasmosis status of the suspect. This is only true if the splenectomized calf develops anaplasmosis. In

some instances the suspect, the calf or both animals will harbor a latent infection of eperythrozoonosis. The causative agent of eperythrozoonosis will often block out the causative agent of anaplasmosis indefinitely unless the calf is inoculated two or more times with blood from the suspect (21). In such instances the incubation period of anaplasmosis may vary from 50 to 100 or more days.

A peek inside . . .

The gross post mortem findings in fatal cases of anaplasmosis show marked evidence of anemia, the blood is extremely watery and the exposed mucous membranes and internal organs are pale. When jaundice is present the tissues will be yellow in color and the liver will be enlarged with rounded edges and yellow instead of its characteristic color. In peracute cases this organ appears normal. The spleen is usually greatly enlarged, sometimes being 2 to 3 times its normal size. The pulp of the spleen is reddish brown and the splenic follicles are enlarged. In other than peracute cases the gall bladder is greatly distended and contains thick green to brown colored viscous bile and often stringy or granular material. When icterus is present the mucous membranes, nonpigmented skin, subcutaneous tissues, omentum, peritoneum and all other tissues are yellow. Epicardial and endocardial hemorrhages are sometimes found in the left portion of heart muscle. The colon and rectum show evidence of constipation and contain ropy mucous and the dry hard fecal material is usually coated with mucous.

Other post mortem changes sometimes found are: petechial hemorrhages on the pleural surfaces of the diaphragm, thoracic wall and lungs, somewhat slimy purplish appearing red bone marrow, enlargement of the various lymph glands and the meninges appear to be thickened—a difficult evaluation.

The microscopic findings indicate there is a suppression of the red bone marrow activity. It has been reported that varying degrees of exhaustion exist in the germinal centers of the spleen and certain cells of the adrenals. Anemia results in the formation of hematopoiesis centers. Degenerative changes were observed in the liver of some animals (20). Recent studies show a marked hyperplasia of the reticuloendothelial cells of the lymph nodes and of the spleen. Also erythrophagocytosis is seen in the spleen and liver as well as mononuclear cells and lymphocytes of the blood (32).

Help for the stricken . . .

Since anaplasmosis was recognized to be a specific disease (5) considerable research has been devoted to obtain a compound with therapeutic specificity against the causative agent. Arsenicals, antimalarials, penicillin, streptomycin, and chloromycetin have proved to be without therapeutic value.

However, in recent years three broad spectrum antibiotics — oxytetracycline, tetracycline and chlortetracycline—have been found to have a therapeutic specificity against the agent of anaplasmosis. In the majority of instances a bovine affected with anaplasmosis is severely anemic before it is observed to be sick. Because of this and even though one of the broad spectrum antibiotics is administered supportive treatment is considered important. Blood transfusions of one gallon or more are regarded as good supportive treatment. However, to some practitioners (33) this is impractical and too expensive except in extremely valuable and gentle animals. Sources of whole blood are sometimes unavailable; and many of the patients are so wild they would usually die from struggling against the restraint needed in a long transfusion; and too often the patient is many miles away in an inaccessible area—too weak to be driven out.

Systemic stimulants such as strychnine and drugs which will stimulate peristalsis of the digestive system are of value as well as the intravenous administration of salines and dextrose solutions. Sick animals must be protected from insects, sun, cold and rain. Such animals must not be molested or moved any more than necessary and should be provided with fresh water and feed.

In 1951, reports show that chlortetracycline had an inhibitory effect on the causative agent (34). This was substantiated in 1952 and at the same time it was shown that oxytetracycline exhibited definite anaplasma inhibitory properties (11).

In 1953 oxytetracycline was again reported to have a specific therapeutic value against the causative agent of anaplasmosis (35). Six animals were treated for 12 and 14 days successfully. Apparently the carrier state of anaplasmosis was eliminated in all of these animals, since anaplasmosis susceptible splenectomized calves did not develop anaplasmosis after being inoculated with blood taken from the treated animals 30 to 365 days after the termination of treatment. One of the animals was splenectomized at the termination of treatment and was reinoculated with virulent anaplasmosis blood 365 days following therapy. Eighteen days after this inoculation the animal developed acute anaplasmosis.

In a field study reported in 1956, two large ranchers, with a major anaplasmosis problem, were asked to cooperate in a therapy study (33). Competent riders were given citrated tubes, blood slides and intramuscular oxytetracycline. These men, on finding a sick animal, would rope it, remove two or three cc. of blood from the ear and make a blood slide. Then they injected the oxytetracycline (terramycin).

At the clinic (33) slides were stained and read, and a hemoglobin determination made on the citrated blood with a Spencer hemoglobinometer. The lowest reading on this instrument, however, is 4.0 grams hemoglobin per 100 milliliters of blood and on many occasions the readings were lower.

Except for the two ranches, all other cases were seen and treated by the veterinarian (33).

Dosages of oxytetracycline varying from one to three mg. per pound of body weight were initially used (33). Animals receiving less than 3 mg. per pound of weight required treatment when next seen in 48 to 72 hours. In most cases, animals receiving larger doses were so much improved that no efforts were made to re-treat them on the ranches. There were 63 cases of anaplasmosis that were treated with oxytetracycline—40 by the author (33), and 20 by the cooperating ranchers. Some experiences of the veterinarian which he considered typical for this field trial are cited:

A valuable Hereford bull was found ill and lying down (33). Tallqvist paper scale blood reading was 30 per cent. The bull rose, walked about 20 yards, and then lay down again. Body temperature was recorded at 104° F.; icterus was plainly evident, and the stool consisted of hard mucous-covered pellets from one to two inches in diameter. The blood slides were read as positive for anaplasmosis and the hemoglobinometer reading was 4.0. This bull was given 3 mg. of oxytetracycline per pound of body weight. In 24 hours the bull was improved, was stronger, and had a temperature of 102.5° F. The stool revealed no change. This bull was re-treated with 3 mg. of oxytetracycline. Two days following initial treatment the bull was very much improved, had a normal temperature, normal stool and good appetite. However, the hemoglobin reading was still 4.0 grams per 100 ml. blood. Four days following initial treatment the hemaglobin reading was 6.0 and the bull recovered uneventfully.

A second typical example (33) involved two old cows with typical symptoms of icterus, constipation and weakness. Both animals had hemoglobin readings of 4.0. Forty-eight hours after 3 mg. of oxytetracycline per pound body weight was administered the cows were much improved, had hemoglobin readings between 4.0 and 4.2. At this time a repeat dosage of one mg. oxytetracycline per pound of body weight was administered. Six days following initial treatment both cows were clinically normal with hemoglobin readings of 6.2.

A third example (33) involved treatment of a three-year-old heifer. This heifer was weak, extremely icteric, wild and irrational. The rider missed on his first throw of the rope and the heifer ran about 100 yards before collapsing. Three mg. oxytetracycline per pound body weight was administered. Two days later the heifer was clinically much improved, re-treated with the initial dose, and recovery was uneventful.

The author (33) noted a general improvement in all treated animals even before significant blood changes were noted. He felt that, in most cases, he treated in the early part of the acute clinical phase of the disease. His observations suggest that oxytetracycline is definitely a drug which modifies the acute phase of the disease sufficiently to, in mose cases, permit recovery and a resultant carrier animal. He feels that oxytetracycline is the drug of choice in anaplasmosis therapy.

In 1955 it was reported that tetracycline had a depressant action against the causative agent of anaplasmosis (36). It was also reported in 1955 that tetracycline was effective in eliminating the anaplasmosis and eperythrozoonosis carrier in two cows (37). Four adult carriers of anaplasmosis and eperythrozoonosis were used in this study.

A report in 1957 showed that tetracycline at 5 mg. per pound of body weight per day was effective in eliminating the carrier state of anaplasmosis in 25 to 30 experimental cattle (38). The cattle were divided into three groups of ten each. Five animals of each lot were administered the antibiotic intravenously and five intramuscularly. The cattle in lot 1 were treated five consecutive days; those in lot 2 were treated five consecutive days, rested ten days and then treated again for five consecutive days; and those in lot 3 were treated for ten consecutive days. This therapy eliminated carrier infection in six of the cattle in lot 1; nine in lot 2; and all in lot 3.

Discontinue insanitary practices . . .

Anaplasmosis can be controlled to a great extent by preventing the transfer of blood from carrier to susceptible cattle. During procedures such as castrating, dehorning and ear notching the instruments should be washed free of blood and disinfected following each use. Clean sterilized separate needles should be used in vaccination and bleeding of each animal.

Real efforts to control blood sucking insects will reduce the incidence of anaplasmosis. Sprays containing repellents and insecticides used periodically will reduce the numbers of flies and mosquitoes. More effort is required to control tick infestations. Beef cattle can be dipped or sprayed to control ticks.

In areas where anaplasmosis is not too common, cattle known to be carriers of the disease should be isolated or sold for slaughter as soon as possible. This has not proved practical in Louisiana where insect vectors of the disease are numerous during the warm months. Under these conditions it is a common practice to retain recovered carriers. Over the years this has indicated that in herds where this procedure is followed the annual incidence of the disease is reduced as opposed to the increased incidence of the disease in herds where known carriers have been eliminated from the herds. Adult anaplasmosis susceptible cattle were introduced in a dairy herd at Jeanerette, Louisiana, now under study (30), and some developed the disease the following summer. The recovered carriers were retained in the herd. Anaplasmosis did not present the problem in the herd the following year, 1957, that it did in 1956.

The less virulent strain designated **Anaplasma centrale** is used in some countries to vaccinate cattle against the more virulent strain designated **Anaplasma marginale.** This is not permitted in the United States and this strain is not present in our country. This procedure was originated in South Africa and involves the inoculation of susceptible cattle, usually young animals, with 5 ml. of defibrinated blood from cattle infected with **Anaplasma centrale** (19). In approximately 25 to 42 days after inoculation the inoculated cattle develop mild reactions and subsequently have an increased resistance to the more virulent infection of **Anaplasma marginale.** Premunition of young calves using virulent blood, **Anaplasma marginale,** results in the mild form of the disease and permanent immunity of such animals. This only perpetuates the disease because inoculated cattle remain sources of the infective agent which can be transmitted to susceptible animals by the various insect vectors or by mechanical transfer of their blood.

It appears that if cattle which are carriers of anaplasmosis could be accurately detected and these cattle sold for slaughter, the disease could be eliminated. Other aspects of eradication must be considered, however. It is known that deer after being infected remain carriers of the disease. It is also known that ticks transmit the infection through the egg to the larvae. If anaplasmosis is to be eradicated, game animals which are carriers, and the ticks must be eliminated also.

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the splenectomized calf develops anaplasmosis. In

Feed Service BULLETIN BOARD

IDEAS TO HELP YOUR CUSTOMERS

Nitrate Poisoning

Stunted conditions of some crops this season should alert cattlemen to the possibility of nitrate poisoning in their livestock.

E. I. Whitehead, chemist at the South Dakota State College Agricultural Experiment Station, reports that the laboratory has been receiving samples of oat hay and oat stubble for analysis. Many contain levels of nitrate considered toxic to cattle, he says, and some cattle losses have occurred.

Oats as hay, straw, or pasture is one of the more common roughages that can contain nitrates in amounts toxic to livestock. Other small grain roughages can also cause trouble. Green corn plants or corn fodder, sorghum, or sudan grass are others.

Nitrate accumulation in plants seems to be associated with high nitrate soils in combination with drouth or frost damage. Ensiling tends to cause the nitrates to disappear after the roughage has fermented three or four weeks.

Mr. Whitehead also warns that well waters, especially from shallow wells, are sometimes high in nitrates and may cause lifestock losses. Occasionally when a water contains some nitrates, but not enough to be toxic alone, it may add to the toxicity of feeds that contain nitrates.

Cattle stricken by nitrate poisoning have a quickened respiration followed by labored breathing, trembling of certain muscles, weakness, staggering gait, and sometimes apparent blindness. The animal sinks to the ground and may fall on its side and lie with its mouth open. The tongue and whites of the eyes turn blue.

◆

Calcium for Poultry

Reducing the calcium level in poultry rations may be a partial answer to the cost problem of feeding antibiotics, says Richard D. Carter, extension poultryman, Iowa State University.

Calcium ties up part of the antibiotics in feed, Mr. Carter said, making it necessary to feed higher levels for the prevention and cure of disease and during periods of stress such as debeaking, vaccination, moving to range and other times when birds are handled.

Cutting down on antibiotic requirements will lower feeding costs for poultrymen, he says. Mr. Carter noted recent research showing that when the calcium level is reduced, as little as one half as much antibiotic need be fed to maintain an adequate antibiotic level in the blood stream. The normal antibiotic level during periods of stress or disease is between 100 and 200 gm. per ton of feed.

"But remember that calcium is a 'very critical' mineral in poultry rations," Mr. Carter cautioned. Therefore, reducing the calcium level in rations in order to increase the avail-

GIVE HIM A TIP HE'LL THANK YOU FOR

Remind him to order Morton T-M Salt. See page 61.

ability of antibiotics should not be done for long periods of time. A low-calcium ration should never be fed for more than four consecutive days, Mr. Carter warned.

◆

Reducing Milking Time

Milking time can be cut in half. Dr. William Petersen, University of Minnesota dairy cattle scientist, says there are four steps that make it possible:

1. Massage teats and udder to stimulate milk "let-down."
2. Start milking one minute later.
3. Don't let teat cups crawl.
4. Strip by machine.

Cows stimulated properly let down their milk freely and completely. Washing the udder causes a muscular contraction which squeezes the milk out of the tiny cells where it is made and into the cisterns and teats.

Starting the machine one minute after stimulation shortens the time needed to get out the milk. Many cows can be milked in 2½ minutes by machine, and with few exceptions 3½ minutes will be the longest time required.

As milking progresses, the lower part of the udder becomes soft and flabby. Teat cups can crawl up on these soft tissues and shut off the milk ducts leading into the teats. This shuts off the last milk in the udder—resulting in incomplete milking.

When teat cups crawl, they should be pulled down part way and the udder should be massaged at the same time. The pinching action stops, the milk ducts open and the rest of the milk can be taken out by the machine. Dr. Petersen recommends taking the machine off as soon as the milk ceases to flow. Leaving it on invites injury which may lead to mastitis.

Cows that show signs of mastitis should always be milked last to prevent the infection from spreading to healthy animals.

◆

Pigs in Confinement

Sixteen square feet of floor space per pig proved adequate in two tests with confinement feeding at the University of Arkansas' Agricultural Experiment Station.

Pigs in summer and winter tests were self-fed a 16% protein drylot ration composed of corn and soybean oil meal fortified with minerals, vitamins and an antibiotic. Pigs went on the summer test averaging about 35 lb. Those in the winter test weighed around 68 lb. They were removed from the lots as they reached 200 lb.

Pigs in the summer test were confined in an open shed with concrete floors. Overhead fogging nozzles were used on warm days to cool the pens.

Pigs supplied 8 sq. ft. of space gained more slowly, but required slightly less feed per pound of gain than pigs in lots with either 16 or 24 sq. ft. per pig. Up to 125 lb., pigs allotted 8 sq. ft. of area gained more slowly than those in the other two lots, reports Dr. P. R. Noland, associate animal husbandman, and associates. There was no advantage in providing 24 sq. ft. per pig compared to 16 sq. ft.

In winter tests, the shed was closed on the north and west. Outdoor concrete exercise pens were provided.

Pigs furnished 16 sq. ft. gained significantly faster than those with only 8 sq. ft. of space, the researchers note. Pigs allowed 16 sq. ft. required less feed to gain a pound than those with either 8 or 24 sq. ft. of floor space. Gains of pigs up to 125 lb. in the three lots were not appreciably different.

Other trials were conducted to determine where the feeder and waterer should be located in a confinement feeding pen. "In a winter test location of the feeder and waterer with respect to the bedding area had no effect on pigs' rate or efficiency of gain," the researchers say.

RUMPLESS CHICKEN STUDIED

AMES, IOWA—Research with rumpless chickens indicated that the rumpless chickens were handicapped in growth and mature body size, but their egg production was 11% higher than normal chickens, according to Dr. Kenneth T. S. Yao, assistant professor of poultry husbandry, Nebraska College of Agriculture, who spoke at the Poultry Science Assn. meeting here recently.

The rumpless chickens averaged 3.8 lb., while normal chickens averaged 4.3 lb. at 10 weeks. Egg production in the rumpless chickens was 65%, while the normal chickens had 54% egg production.

Research also revealed that the various types of rumplessness in chickens had its effect on growth and egg production, according to Dr. Yao.

Lloyd Burlingham, famous farm newscaster, reports to feed mixers on the value of fresh-dried sweet whey—KRACO by KRAFT.

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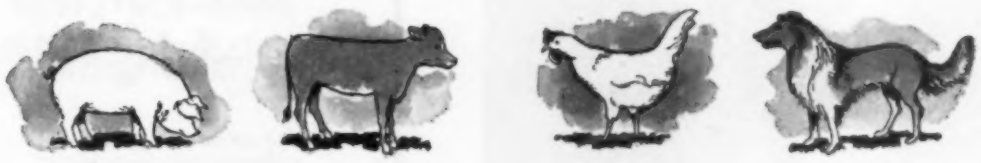

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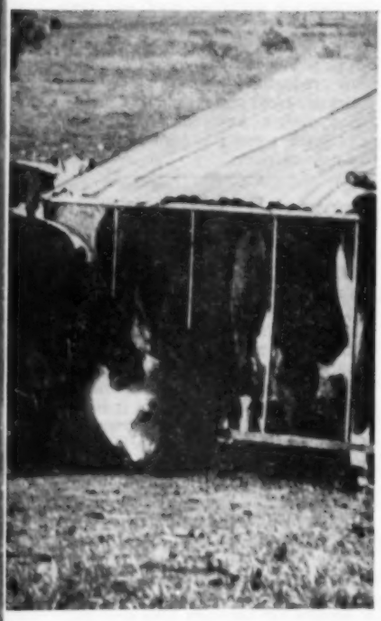

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Threat of Over-Production Discussed at American Soybean Association Meeting

ST. LOUIS—A shift of large acreage of corn land into soybeans in 1960, as advocated by some authorities, could mean a catastrophe for the soybean industry, George M. Strayer said at the recent annual convention of the American Soybean Assn. in St. Louis. He is executive vice president and secretary-treasurer of the association.

"This year we have reduced soybean acreage due to relaxed corn support prices, and lowered soybean supports," Mr. Strayer said. "We have a huge surplus of corn staring us in the face. Probabilities are that drastic measures will be taken to reduce corn acreage in 1960. If so, where will such acreage go? Are we going to try to solve our corn surplus problem by creating the same problem for soybeans?"

The association went on record urging extension of Public Law 480 for a three-year period with an increased level of financing to $2 billion to "relieve surplus food congestion for our nation, contribute to the peace of the world and build up foreign markets."

The association also opposed "any proposals by government agencies which will limit or ban the usage of soybean oil or soybean protein in healthful food products for human consumption. We believe such products should be allowed to find their own levels of consumption based on quality and price, unhampered by legislative regulations," an association report stated.

The association elected C. G. Simcox, Assumption, Ill., as president, succeeding John Sawyer, London, Ohio, who has served as president the past two years. Charles V. Simpson, Waterville, Minn., was elected vice president, succeeding Mr. Simcox. Mr. Strayer, Hudson, Iowa, was reelected executive vice president and secretary-treasurer.

In his talk before the group Mr. Strayer urged that more attention be paid to variety and to reduced foreign material content of U.S. soybeans exported to Japan and other Asiatic countries where the beans are used for human food rather than for processing purposes. "We cannot expect soybeans of the quality deliverable under our present grades to be satisfactory to Japanese or Chinese populations which use them mainly for food," he said.

He advocated that small broken particles of soybeans be classified as splits rather than as foreign material which exacts a penalty under present grading standards. "These broken particles will make oil and meal, just as do split soybeans. They are not foreign material—they are mechanically reduced portions of soybeans," he said. Mr. Strayer said such a change in the grading standards may mean millions of dollars to producers, handlers and exporters.

Ersel Walley, chairman of the market development committee of the association, said the world has a minimum need of 1 billion bushels of soybeans, almost double the present U.S. crop. He discussed new potential markets for soybeans, and said that large populations around the world are in need of protein food, such as can be provided by soybeans and soybean products.

Twenty-five states and Canada, Japan, Brazil, Australia, India, Italy and Spain were represented at the two-day session.

H. C. Prescott

P. C. Wake

SCHOOL SPEAKERS—Pelleting will be the main theme at the 1959 Feed Production School Sept. 23-25 in Kansas City, and here are two of the speakers who will cover pelleting topics. Philip C. Wake, J. H. Wake Feed Mill, Oskaloosa, Iowa, will present detailed information on pelleting complete rations for swine and poultry, and H. C. Prescott, Aero Bulk Mfg. Co., Kansas City, will discuss roughage pelleting and pelleting of complete rations for ruminants. Mr. Prescott also will discuss roughage pelleting at the Small Mill Short Course on Saturday, Sept. 26.

George S. Milnor, Price Stabilizer, Dies

CHICAGO—George Sparks Milnor, grain price stabilizer, died recently at Evanston (Ill.) Hospital. He was 78. Mr. Milnor headed the nation's first attempt at regulating grain prices under President Herbert Hoover.

He was associated with the former Sparks Milling Co. in many capacities from 1889 to 1930, and was president of the company in 1930 when he moved from Alton to the Chicago area to head up the grain stabilization program under the Federal Farm Board.

Between 1938 and 1956 he was president of the Mississippi Elevator Co. in Alton. The firm has since been acquired by the Russell-Miller Milling Co. He also was president of Milnor & Sparks Co. between 1943 and 1947. The firm processed wheat during the war and immediate postwar years.

For many years Mr. Milnor was associated with Millers Mutual Insurance Assn., serving as president through 1955, then becoming chairman of the board, a post he held at the time of his death.

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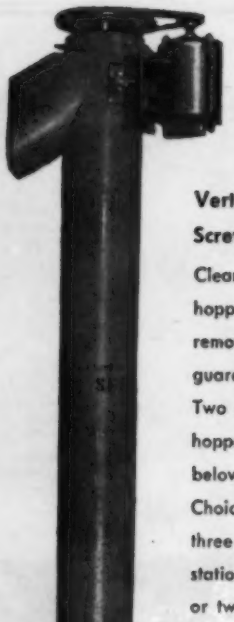

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New Mill Helps Mississippi Broiler Integrator Increase Efficiency

By Jess F. Blair
Feedstuffs Special Writer

Fred Moore of Morton, Miss., is one of the many poultry integrators in the South who have had to improve efficiency in every department in order to stay in business. The Fred Moore Co. has been handling broilers and breeding hens for the last 10 years.

"We have gone through some rough times," he said, "and each time we've made a detailed study of our operations in order to increase efficiency."

One of the recent steps was to erect a new feed mill, which Mr. Moore completed several months ago. The plant is small and compact but will turn out 100 tons of complete poultry feed in eight hours.

"We had to get better use of labor and speed up handling," he pointed out.

The building that houses the mill is only 24 by 40 ft. but is large enough to handle all operations, Mr. Moore indicated.

He brings in Master Mix concentrates and corn to make the feed he uses in his operations. Provision also is made to add various drugs and other additives to the feed.

Mr. Moore has three grain tanks which hold 9,000 bu. of grain, and he has facilities for storing 120 tons of concentrates. The concentrates are hauled to the mill in bulk with the firm's own truck.

"We do not need a large storage in this business," he said, "because we receive almost daily shipments and want to use only freshly mixed feeds."

Fred Moore of the Fred Moore Co., Morton, Miss., is shown here in his private office at his new feed mill. He has been in the broiler business for 10 years.

Ingredients

The shelled corn, which is the energy base for all of Mr. Moore's feeds, is shipped in by large trucks. Trucks back into a canopied driveway with a concrete floor. A power shovel is used to unload the grain, which is then elevated into one of the storage tanks. The grain is ground on a 60 h.p. Jay Bee hammermill. The ground grain and concentrates are augered into a hopper scale and then conveyed to the Kelly Duplex mixers.

Incoming bulk concentrates are moved into overhead bins for storage before mixing.

After mixing, the complete feed is sent outside by auger to the bulk truck, and weighed on a Howe scale. Feed that is not loaded out immediately is conveyed to overhead bins.

Mr. Moore has five tanks for concentrates used in the feeds. He also adds medication and other additives to the feed.

The firm has two bulk trucks for delivery—a 6-ton unit and a 7½-ton unit. All feed is handled and delivered in bulk, although it could be put into sacks if the need arose.

"The entire mill is operated with electrical controls," said Mr. Moore. "I keep only two men at the mill. One runs the machinery, while the other helps with the unloading and does the odd chores."

Usually Mr. Moore keeps about 250,000 broilers on his own farm and has a similar number on the farms of contract growers. He also has a flock of several thousand hens which produce hatching eggs for the broiler industry.

Low Margins

"This has been a fast-changing industry," said the owner. "The profit margin per bird has shrunk so much that only by using every known method of efficiency can a producer stay in business. We're getting better feed conversions, better birds and speeding up things all along the line. A farm grower who can't get a pound of chicken on 2½ lb. of feed wouldn't have a job long. And neither would the mill owner."

In working with farm owners, Mr. Moore's contracts are similar to those of other integrators in the area. He retains ownership in the broilers. He also furnishes all feed and medication, delivers the feed and furnishes close field supervision. The farmer must provide housing, equipment and floor litter, and pay for all utilities.

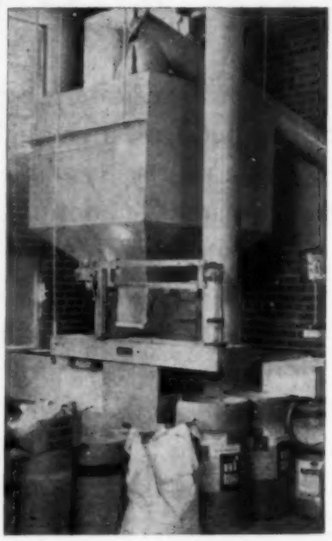
At present the grower is given about 2¢ per pound for the finished bird, providing he has achieved a good feed ratio. For an excellent conversion and low mortality rate, he is given a slight bonus.

After 10 years in the business, Mr. Moore is equipped to operate on a large scale, which is the only way a broiler producer can stay in business, it was noted.

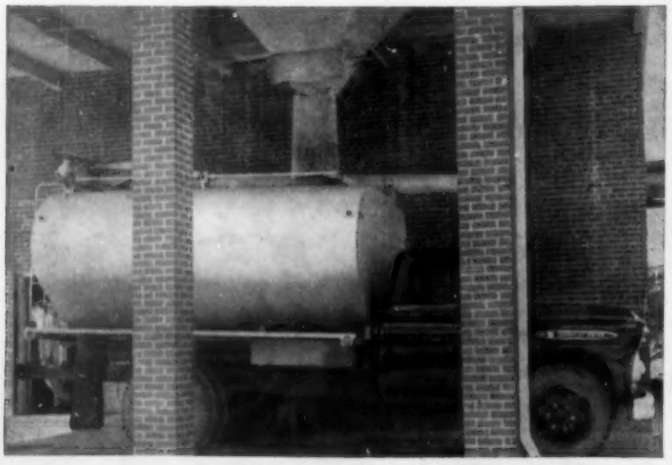
Here are some of the things he listed as being essential for success in the broiler business.

1. He must have a good feed mill that will make any kind of ration needed, and it must be done with a minimum of time and labor.
2. The mill owner must have a good nutrition knowledge or arrange for nutrition service. Hit-or-miss rations can prove costly in feeding any kind of poultry.
3. He must have a good service man who knows chickens and can tactfully impart this knowledge and enthusiasm to farmers.
4. He must handle feed in bulk form.
5. He must select the birds with great care, keep up with all the new developments in breeding and feeding and be able to make wise decisions.
6. Finally, he must operate in great numbers. "If an operator makes ½¢ per bird, he would clear around $2,500 on a half million," Mr. Moore explained. "This isn't much money for a 10 to 11 weeks period, but he could stay in business. And there are some

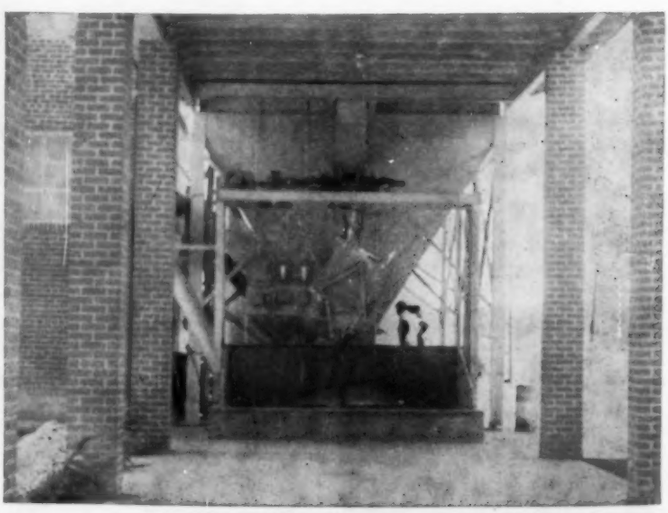
The Fred Moore Co. feed mill is located just east of Morton, Miss. A new brick office building is just in front of the mill in this picture, and only a small part of the mill can be seen here.



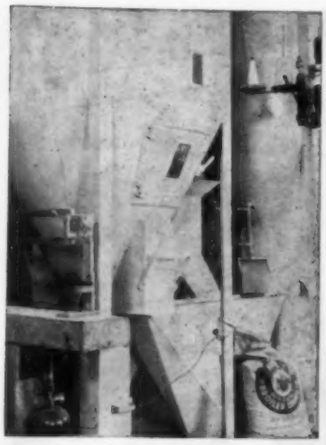
The scale hopper at the Fred Moore feed mill. Ingredients are weighed here and then conveyed to the mixers. All operations except some weighing are controlled from an electric control board. Below are some of the additives used in mixing broiler rations.



A bulk truck is being loaded with feed, which is taken to the broiler farm and augered into overhead bins. Two men operate the mill, and two men drive trucks. Mr. Moore and his combination bookkeeper and secretary make up the rest of the personnel in the operation which involves feeding a half million broilers.



The unloading point for trucks bringing corn to the mill. Trucks back into this driveway, and a power shovel is used to unload the grain. The roof on the ramp protects grain and workers from rain.



The new Kelly Duplex mixers in the Fred Moore Co. feed mill. Grain, concentrates and additives are combined to make complete poultry feeds. Mr. Moore said more than 98% of the feed is mixed and hauled in bulk.

times when we didn't clear this much. But suppose that man is spending his full time in working with 100,000. His net would then be only $500, which wouldn't be a living wage. So in this business, you must operate in a big way or not at all."

California Feed Law Revised; No Major Alterations

SACRAMENTO, CAL.—California feed regulations have been revised, not to initiate any major changes, but rather to put the official stamp of approval on practices of the feed trade which have been brought about by changes of manufacturing methods and technological advancements, according to H. E. Spires, chief of the bureau of field crops for the State of California Department of Agriculture.

"For instance, the complicated medicated feeds now widely used require so much label information that it was necessary to put some of the required information on the reverse side of the label. This is now approved by our regulation 2698," Mr. Spires explained.

"Alfalfa meal to which 1 or 2% fat or oil has been added together with an antioxidant is a much superior product than the old meal which contained no additive; but the manufacturer still wishes to label and sell his product as alfalfa meal without a complicated label. Our revised regulation 2773 permits this, yet gives the purchaser complete information. The same is true for antioxidants in meat and bone scraps."

Mr. Spires went on to say that to maintain high quality of dehydrated alfalfa meal, a standard was set for the moisture content of the alfalfa as it arrives at the dehydrator. This minimum moisture is 70%, whereas the Association of American Feed Control Officials requires only 50% moisture, he said.

He noted also that the old regulations stated that for some of the oil meals it was required that the method of extraction of the oil (solvent, hydraulic or expeller) be stated, while other oil meals were exempt from this requirement, and that this requirement now applies to all oil meals.

GRAIN STATION CONSTRUCTED

ALMIRA, WASH.—A 31,000 bu.-capacity Almira Farmers Warehouse Co. grain receiving station is nearing completion seven miles south of Almira. Grain received at this substation during the harvest season will be transported to the firm's large storage facilities at Almira.

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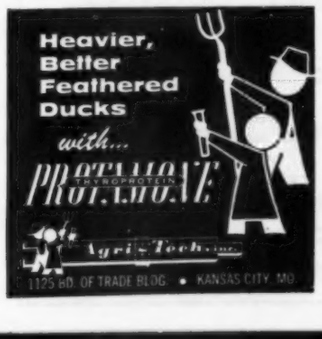

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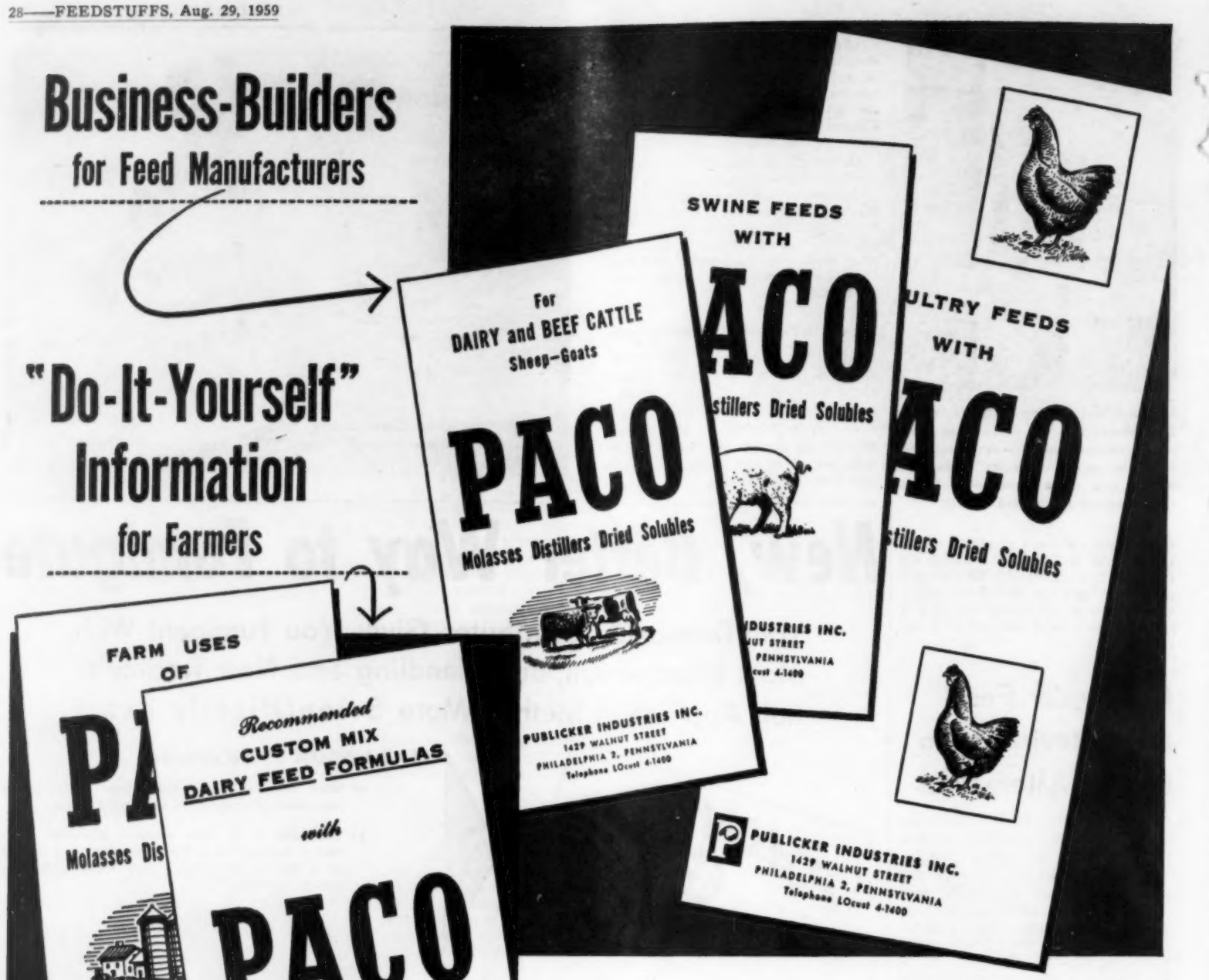

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Report Presented on Continuous Feeding of Hygromycin to Poultry

COLLEGE STATION, TEXAS—A report on the "Continuous Feeding of Hygromycin as a Poultry Anthelmintic and Its Effect Upon Laying Performance" was presented at the recent Texas Poultry Conference by Dr. J. H. Quisenberry, head of the poultry science department at Texas A&M College.

A summary of his report follows:

"A total of 1,133 inbred hybrid pullets were used to test the effects of continuous feeding of hygromycin as a poultry anthelmintic and its effect upon laying house performance.

"Each treatment group contained two replications of approximately 189 birds each. The treatments consisted of groups fed a basal control diet, basal supplemented with 6 gm. of hygromycin (2½ lb. of Hygromix) per ton of feed, and basal supplemented with 12 gm. of hygromycin (5 lb. of Hygromix) per ton of feed.

"The birds were kept in brooding pens the first nine weeks and then transferred to contaminated range where they remained until 20 weeks of age. Periodic samples of birds were sacrificed from each lot, and parasite counts made.

"It appears that the anthelmintic property of hygromycin may be more effective against cecal worms than against roundworms. Infestations with tapeworms were slight in the control and treated birds alike. In general, the parasite count was reduced as the level of hygromycin was increased.

"The data indicate that the continuous feeding of hygromycin during the growing period is effective in reducing the number of parasitized birds under conditions of relatively severe exposure.

"Lots receiving the 5 lb. of Hygromix were the heaviest in body weight at 20 weeks (2.96 lb.) and consumed the greatest amount of feed (17.09 lb.). Mortality was low in all treatments but highest in the basal lots (2.38%). Days to first egg was lowest for the lots receiving 5 lb. of Hygromix (134 days), and highest for the basal lots (140 days).

"Inclusion of hygromycin in the diet during both the growing and laying periods significantly increased egg production over the basal lots. Feed efficiency for egg production was highest for birds receiving the 2.5 lb. of Hygromix during the growing and laying periods. Mortality during the laying period was highest for the lots receiving the basal and low level hygromycin diets.

"Results of this experiment showed that the continuous feeding of hygromycin in a practical type diet resulted in a higher rate of production and improvement in feed efficiency. For optimum results, the hygromycin should be included in both the growing and the laying ration. Twelve grams of hygromycin per ton of feed may be in excess of the requirements. Effects of high levels upon palatability remain to be determined."

TEXAS GRAIN STOPPED

DENVER, COLO.—The Colorado department of agriculture recently announced an immediate quarantine on grain shipments from Texas because of the detection of the khapra beetle in stored grains there. The voracious insect has been detected in several warehouses, particularly in the El Paso area, Herb Gates, chief of the plant industry, said.

"It is now necessary to include Texas in the quarantine the state has had against New Mexico, Arizona and California," Mr. Gates said. Grain can now be shipped from Texas into Colorado only if the grain is certified to be free of the insect.

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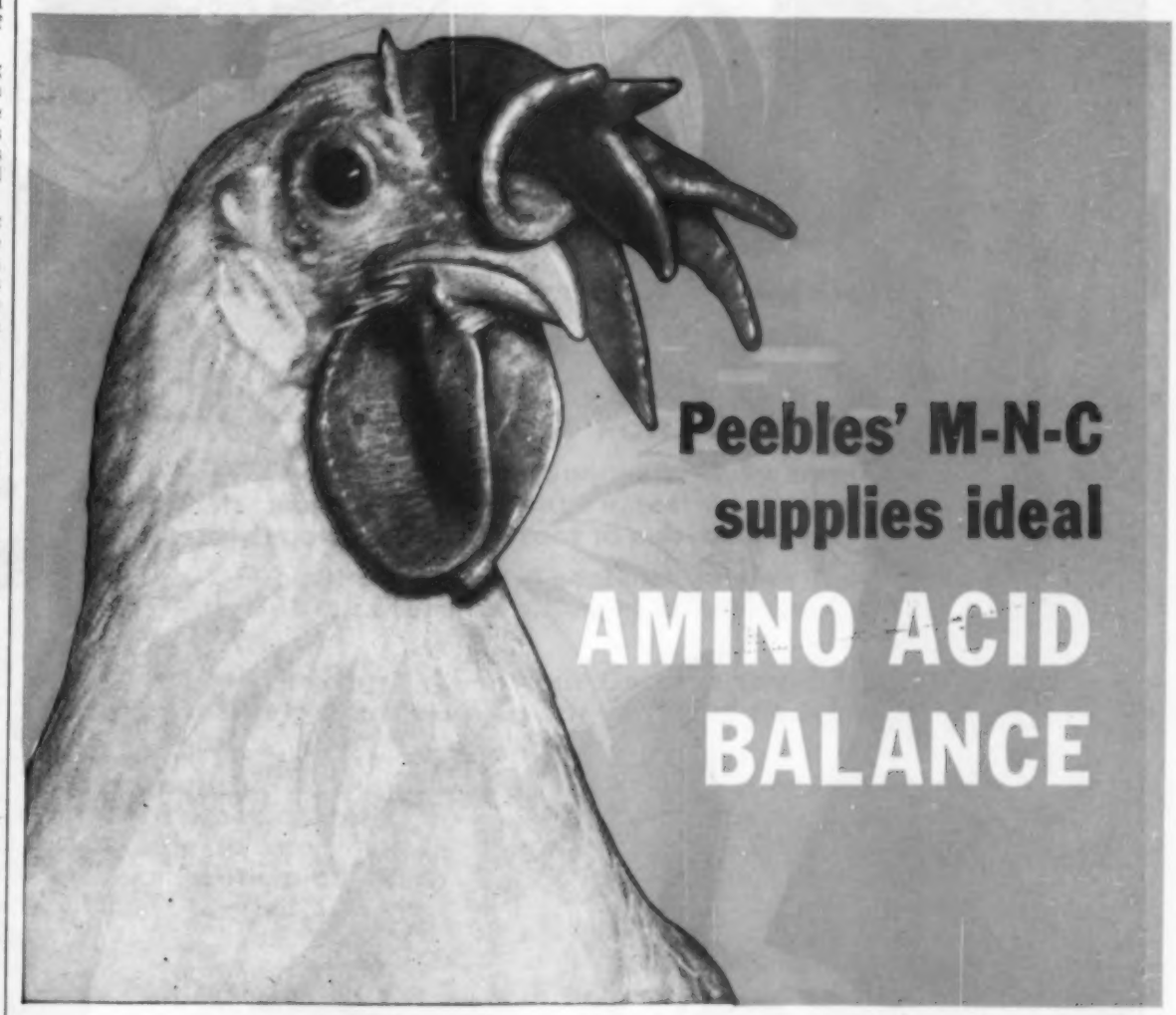

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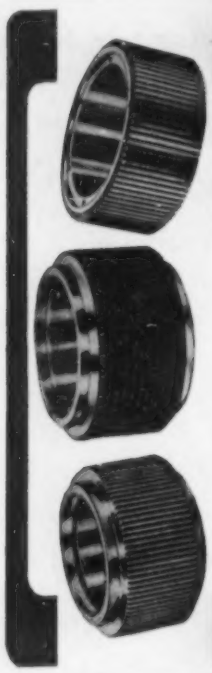

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Record Feed Tonnage For Wisconsin in '58

MADISON, WIS.—A record total of 1,137,218 tons of commercial feed was purchased by Wisconsin poultry and livestock feeders in 1958, according to Walter Griem, chemist in charge of the feed and fertilizer section of the Wisconsin Department of Agriculture.

The previous high of 1,118,983 was reported used in 1945, the last year of World War II. The 1958 figure of tonnage used was also an increase of 8.17% over the 1,051,363 tons for 1957. A change in kinds of feeds used, according to Mr. Griem, is also very evident in the annual report.

There was a substantial increase in the amount of mixed feeds purchased, Mr. Griem said. In 1957, 660,000 tons of "mixed" were used as compared to 739,000 tons in 1958. The trend is continuing in 1959.

There was a bit of decline in the use of unmixed protein feeds from 214,000 tons in 1957 to 210,000 tons in 1958. Low protein unmixed feeds showed an increase from 124,000 tons in 1957 to 138,000 tons in 1958, while unclassified feeds dropped from 53,000 to 51,000 in the same period.

In the mixed feed category there was a sharp rise in poultry feeds to 297,000 tons. Large increases in broiler and turkey complete feeds more than made up for a slight decrease in growing and laying mash tonnage.

There has been very little change in dairy feeds the past two years, with 197,000 tons fed in 1958. Pig and swine feeds showed a sharp rise from 90,000 to 125,000 tons, while the 15,000 tons beef feed and 23,000 tons of calf feed also represented an increase over 1957.

The 1958 use of commercial dog feed at 26,000 tons was a larger item in Wisconsin food trade than calf feeds, which one would expect to be of far greater volume in a dairy state.

Some of the other items of significance in the feed tonnage picture included 87,000 tons of linseed oil meal, 50,000 tons of soybean oil meal, 45 tons of malt sprouts and dried grains, 116,000 tons of wheat mill feeds and 33,000 tons of molasses.

Feed Sales in Wisconsin
Net Retail Feed Sales, 1957-58

Feed	Tons 1957	Tons 1958	% of Total 1958
MIXED FEEDS	660,124	739,251	65.00
Poultry feeds total	266,876	296,594	26.08
Broiler complete	39,842	54,917	4.83
Broiler concentrates	7,615	7,088	0.60
Turkey complete	15,176	30,772	2.71
Turkey concentrates	9,537	9,827	0.86
Other poultry complete	124,247	121,419	10.68
Other poultry concentrates	70,459	72,571	6.38
Dairy feeds total	195,258	196,932	17.32
20% protein and under	127,024	121,998	10.73
Over 20% protein	68,234	74,934	6.59
Pig and hog feeds total	90,007	125,331	11.02
25% protein and under	24,015	35,225	3.09
Over 25% protein	65,992	90,106	7.92
Beef feeds total	13,307	14,767	1.29
25% protein and under	6,563	4,106	0.36
Over 25% protein	6,744	10,661	0.94
Calf feeds	19,059	22,833	2.01
Dog feeds	24,657	25,789	2.27
Gr. grain mixtures	5,103	6,855	0.60
Mineral feeds	15,127	16,654	1.46
All other mixed feeds	30,730	33,496	2.95
PROTEIN FEEDS	213,584	209,602	18.43
Soybean meal	50,066	49,680	4.37
Malt sprouts, dried grains	61,298	44,899	3.95
Corn gluten feed and meal	7,272	6,084	0.54
Meat scraps and tankage	26,277	17,059	1.50
Linseed meal	64,650	87,337	7.68
Dairy by-products	1,304	1,609	0.14
Cottonseed meal	1,435	633	0.06
All others	1,282	2,301	0.20
LOW PROTEIN FEEDS	124,202	137,855	12.12
Wheat mill feeds	104,902	116,412	10.24
Corn mill feeds	158	4,169	0.37
Alfalfa products	3,201	4,263	0.37
Oat mill feeds	4,931	2,557	0.22
Screenings		4,169	0.37
All others	11,168	10,296	0.91
UNCLASSIFIED	53,457	50,510	4.45
Molasses	32,688	33,068	2.91
Phosphorus supplements	2,222	3,434	0.30
Iodized salt	10,029	7,837	0.69
Ground limestone	8,518	6,171	0.54
All others			
TOTAL SALES	1,051,365	1,137,218	

Wholesale Feeds Used by Wisconsin Manufacturers in Mixed Feeds, 1958

Feed	Tons
MIXED FEEDS	12,142
Mineral feeds	732
Beef supplements	37
Dairy supplements	2,767
Hog supplements	818
Broiler supplements	2,114
Turkey supplements	5
Other poultry supplements	6,401
PROTEIN FEEDS	164,006
Corn gluten feed and meal	7,797
Cottonseed meal	1,288
Linseed meal	18,574
Soybean meal	95,557
Malt sprouts, dried grains	11,910
Meat scraps and tankage	22,262
Dairy by-products	2,684
All others	3,934
LOW PROTEIN FEEDS	75,885
Wheat mill feeds	33,634
Corn mill feeds	2,345
Oat mill feeds	6,803
Alfalfa products	17,362
Screenings	11,690
All others	4,051
UNCLASSIFIED	57,396
Iodized salt	5,929
Phosphorus supplements	12,692
Ground limestone	15,190
Molasses	13,667
All others	9,918
TOTAL	310,161
Total used 1954	316,309
Total used 1955	289,487
Total used 1956	305,172
Total used 1957	272,718
Total used 1958	310,161

39.4% of the mixed feeds used in the state were Wisconsin produced in 1958 compared with 41.3% in 1957, 43.2% in 1956, 45.3% in 1955, 42.3% in 1954, 45.5% in 1953, 45.0% in 1952 and 47.3% in 1951.

EGG LAW DEFEATED

MADISON, WIS.—The Wisconsin Senate recently killed a bill which would have set up an egg grading law under supervision of the Wisconsin State Department of Agriculture. The measure would have required licensing of retail dealers and set standards for grading and storage.

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- **Recommended Protein Levels**
- **Time Element in Protein Feeding**
- **Excessive Protein Intake**
- **Inadequacy of Protein Standards**
- **Amino Acid Requirements**
- **Formulation on Amino Acid Basis**
- **Amino Acid Supplements**
- **Vitamin and Mineral Levels**
- **Fortification of Swine Rations**
- **Antibiotics and Arsenicals**

By Dr. D. E. Becker
University of Illinois

Dr. D. E. Becker

AUTHOR—Since the fall of 1950, Dr. D. E. Becker, professor of animal science at the University of Illinois, Urbana, has been conducting research on swine feeding and nutrition. His research has dealt with various fields, including the metabolic function of cobalt in ruminant nutrition, the chemistry and morphology of ovine blood, the protein and amino acid nutrition of the pig, the effect of antibiotics on nutrition of the non-ruminant, the comparative nutritive value of carbohydrates for swine and the evaluation of common swine feedstuffs. The University of Illinois granted him a bachelor of science degree in agriculture in 1945. Following graduation, he joined the university staff and obtained a master of science degree in animal science in February, 1947. He entered Cornell University in September, 1947, and received his doctor of philosophy degree in animal nutrition in 1949. After a year on the staff of the University of Tennessee as a nutritionist and consultant for the Oak Ridge Laboratory, Dr. Becker returned to the University of Illinois as a full time staff member. Dr. Becker is a member of the American Society of Animal Production, Poultry Science Assn., Animal Nutrition Research Council and the American Institute of Nutrition. He was awarded the 1957 American Feed Manufacturers Assn. award for research in the field of animal nutrition, and in 1958 he was elected a fellow of the American Association for the Advancement of Science. Dr. Becker was born Feb. 2, 1923, at Delavan, Ill., and reared on a farm near Mason City, Ill., where he obtained his primary and secondary education.

In general, balancing the nutrient content of swine rations is largely a matter of correcting the deficiencies of the cereal grain which serves as the primary source of energy. Of course, in the Midwest, yellow corn is the main cereal used, although there is considerable interest in the feeding value of grain sorghums. For swine feeding, yellow corn has several nutrient deficiencies. It is notably deficient in quantity and quality of protein, since it contains only 7-9% protein which is deficient in practically all of the amino acids required by the weanling pig. In addition, corn is lacking in several vitamins and minerals which, therefore, must receive consideration in formulating practical swine rations.

RECOMMENDED PROTEIN LEVELS—Perhaps no class of nutrients is more important and critical in swine rations than proteins or their components, amino acids. Protein is needed in the diet of all classes of swine in order to supply amino acids for the physiological processes, such as maintenance, growth, reproduction and lactation. The demands for growth and lactation are particularly large. For instance, in the growing pig a deficiency of protein or of any one of the essential amino acids in the diet results in arrested or slowed growth, depressed appetite, and inefficient feed utilization. The importance of supplementary protein or amino acids is more fully appreciated when it is recognized that 40 to 60% of the total dietary protein of the pig is supplied by the low-quality protein of corn.

The minimum protein levels needed for optimum performance have received considerable attention. Recommended protein feeding levels are presented in Table 1.

TIME ELEMENT IN PROTEIN FEEDING — It is significant that there is no body storehouse of amino acids which can be drawn upon to enhance the utilization of poor quality proteins. In other words, for maximum protein utilization all of the required amino acids must be present in the diet at the same time and in the right amounts. The body does not have the ability to store an excessive intake of one amino acid to be used in subsequent periods of inadequate intake. Instead, an excessive intake of an amino acid is deaminated and used as a source of energy by the body.

It has been demonstrated repeatedly with rats that amino acid supplementation delayed several hours after feeding a diet deficient in the respective amino acid gives significantly lower nitrogen retention, weight gains, and efficiency of food utilization than when the amino acid feeding is not delayed. Furthermore, these differences are greater as the interval between supplementary amino acid feeding lengthens.

The foregoing suggests that corn and supplementary proteins must be fed with the proper timing. Nebraska workers have studied the problem of the proper time to feed supplementary proteins with corn to growing pigs. The data are presented in Table 2.

Growth rate was considered to be as rapid and nitrogen utilization was as efficient for feedings with a 24-hour interval between supplements of protein as for pigs fed corn and protein supplement mixed. A 36-hour and 48-hour interval between protein supplement feedings caused 7% and 14% reductions in nitrogen retention, respectively. Although the 48-hour feeding interval produced the poorest nitrogen utilization there was evidence of some mutual supplementation of the corn and supplemental proteins.

The data demonstrate the importance of feeding supplementary proteins daily rather than after irregular or prolonged intervals.

EXCESSIVE PROTEIN INTAKE—Occurrences of illness and deaths in swine which are attributable to excessive protein intake seem unlikely.

At the Ohio stations, rations containing 9, 17, 26, 34 and 51% protein were fed to growing-finishing pigs for 168 days. A control ration of corn, alfalfa meal, yeast, cod liver oil concentrate and minerals was fed, and the protein level was varied by adding amounts of a supplement consisting of 25% dry-rendered tankage, 25% herring meal, 37.5% soybean oil meal and 12.5% of cottonseed meal. It was observed that diarrhea was prevalent in pigs fed 26% or more of protein and the severity of the diarrhea increased with increasing protein levels. Otherwise, high-protein rations did not have a serious detrimental effect on the pigs.

Similar data have been presented by workers at the Illinois station. Feeding a diet composed of soybean oil meal, alfalfa meal, meat and bone scrap, minerals, and antibiotic and containing 42% protein failed to produce death losses in growing-finishing swine. Although the rate of gain was depressed and diarrhea was prevalent there was no other evidence of disease or toxic effects.

INADEQUACY OF PROTEIN FEEDING STANDARDS—From the practical viewpoint, proteins are the source of dietary amino acids, and swine nutritionists have attempted to comply with minimum amino acid requirements by adhering to prescribed protein levels. For example, the 25-lb. growing pig should be fed a ration containing 16% protein according to Table 1, which implies that all such rations would be adequate in amino acid content. However, the data presented in Table 3 demonstrate that diets containing 18% protein may be inadequate for proper amino acid nutrition of the weanling pig. In experiment 1, weanling pigs fed a corn-fishmeal diet supplemented with minerals and vitamins, and containing 18% protein failed to exhibit a satisfactory rate and efficiency of gain. Likewise, in experiment 2, a diet of corn and meat scraps with minerals and vitamins failed to support optimum performance. The effectiveness of added tryptophan in improving the rate and efficiency of gain in both experiments indicates that the diets were inadequate in this particular amino acid. So, amino acid deficiencies can exist in the presence of protein levels that conform to the minimum recommendations.

As noted earlier, corn as the basic ingredient of swine rations supplies a considerable portion of the amino acids. However, relative to the total need, it is deficient in all the essential amino acids, except arginine and leucine. Histidine, valine and phenylalanine are only slightly deficient in corn, and they are ordinarily supplied in plentiful amounts by the supplementary proteins. The levels of isoleucine, lysine, methionine, threonine and tryptophan may be inadequate in the ration and justify careful consideration.

As supplements to corn, menhaden fishmeal and meat and bone scraps are too deficient in tryptophan to adequately supplement corn. Other sources of supplementary protein are also too deficient in certain amino acids to adequately correct the deficiences in corn protein. Tankage is also lacking in tryptophan. Blood flour or meal is markedly deficient in isoleucine, and it is also slightly lacking in methionine. Cottonseed meal, linseed meal and sesame seed meal are limiting in their lysine content. Even soybean oil meal, which is the most commonly used source of supplementary protein in swine feeding, is borderline in its content of methionine.

In view of the above, it is well to remember that protein in feeding standards for swine merely express a quantitative need for protein. All proteins, regardless of their amino acid

TABLE 1. Recommended Protein Levels and Average Feed Intake for Swine Illinois — 1959

Classification	Protein content of ration %	Av. daily feed intake lb.	Av. daily protein intake lb.
Growing-finishing pigs			
Creep feed (suckling)—5 to 30 lb.	20	...	...
Pig starter (weaned)—10 to 30 lb.	20	0.90	0.18
Grower—30 to 100 lb.	16	3.75	0.60
Finisher—100 to 200 lb.	12	6.75	0.81
Gestation			
Gilts	16	5.00	0.80
Sows—first two thirds	12	5.00	0.60
last one third	16	5.00	0.80
Lactation			
Gilts and sows	16	12.0	1.92
Breeding boars	16	6.0	0.96

TABLE 2. Importance of the Time Element in Protein Feeding (Eggert, et. al., 1953. J. Nutr. 50:469)

	Corn and supplement mixed	—Interval between feedings of— protein supplement		
		24 hours	36 hours	48 hours
Number of pigs	8	8	8	8
Average initial weight, lb.	62.5	63.6	66.0	66.0
Average daily gain, lb.	1.18	1.15	1.11	1.08
Feed per lb. gain, lb.	2.54	2.61	2.86	2.92
Retention of App. Dig. N, %	51.9	51.8	48.3	44.8

TABLE 3. A Comparison of Rations Containing 18% Protein for the 25-lb. Pig

	No. of pigs	Average daily gain, lb.	Feed per lb. gain, lb.
Experiment 1—Average pig weight, 41 lb.			
1. Corn-soybean oil meal diet	8	1.04	3.06
2. Corn-fish meal diet	8	0.74	3.90
3. (2) + 0.05% DL-Tryptophan	8	1.16	3.44
Experiment 2—Average pig weight, 36 lb.			
1. Corn-soybean oil meal diet	8	1.23	2.99
2. Corn-meat and bone scrap diet	8	0.96	4.17
3. (2) + 0.1% DL-Tryptophan	9	1.24	3.33

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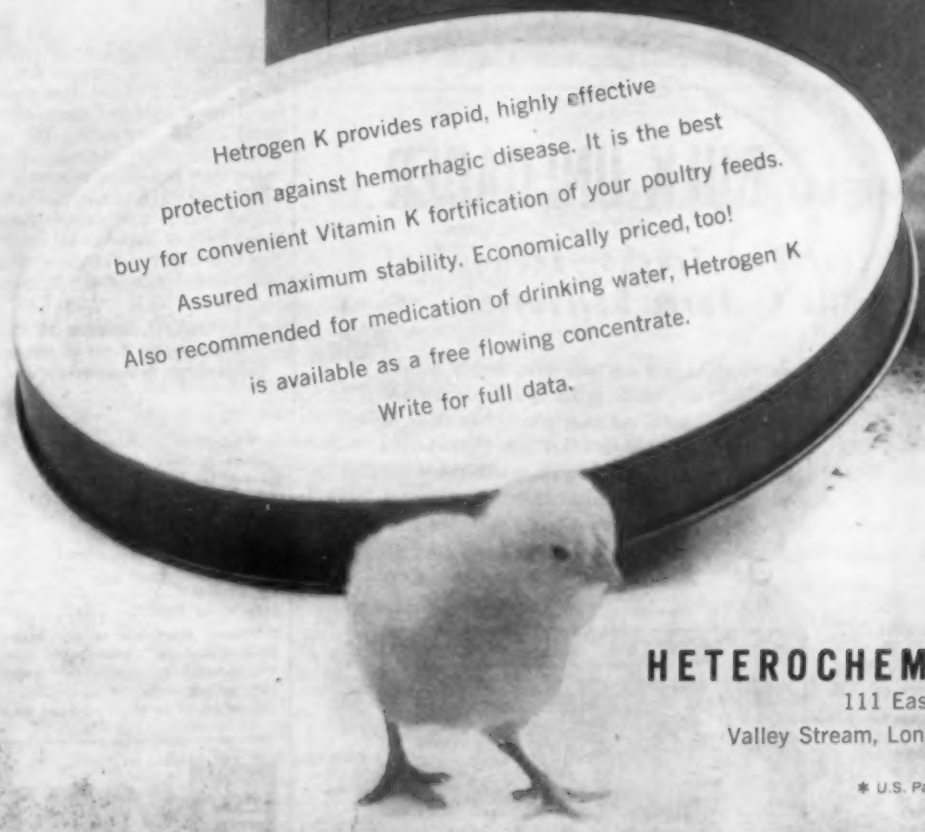

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TABLE 4. Amino Acids for the Pig

Essential	Non-essential
Arginine	Alanine
Histidine	Aspartic acid
Isoleucine	Citrulline
Leucine	Cystine
Lysine	Glutamic acid
Methionine	Glycine
Phenylalanine	Hydroxyglutamic acid
Threonine	Hydroxyproline
Tryptophan	Norleucine
Valine	Proline
	Serine
	Tyrosine

distribution, will not necessarily satisfy the pigs' need even when fed at the prescribed level. Hence, it is essential that swine nutritionists have a complete knowledge of amino needs when formulating diets.

AMINO ACID REQUIREMENTS—We have realized for a long time that it is the constituents of protein, rather than protein per se, which are so critical in adequate nutrition of swine. Actually, swine do not require protein in the diet. Workers at the Purdue station have obtained normal growth in weanling pigs fed no protein, but only purified amino acids and an additional source of nitrogen.

Some 22 amino acids have been recognized in animal feeds. However, only 10 of these are considered essential for proper nutrition of swine—an essential amino acid being one that the pig cannot synthesize at a sufficiently rapid rate to permit optimum performance. The non-essential amino acids can be synthesized by the body tissues, if a source of nitrogen is present, and hence, they are not required in the diet. Although the non-essential amino acids are not required in the diet, both cystine and tyrosine, if present, can satisfy a part of the need for methionine and phenylalanine, respectively. The essential and non-essential amino acids for the pig are listed in Table 4.

Most of the feeding trials designed to directly measure the amino acid requirements of swine have been conducted at the Cornell, Illinois and Purdue stations. Although the individual amino acids have been studied at a very limited number of protein levels, it is clear that amino acid needs at one protein level will not necessarily satisfy the need at all levels of adequate protein intake. For instance, at Illinois we have obtained convincing evidence that the isoleucine and lysine requirements were markedly different at two protein levels.

In some previous attempts to state amino acid needs of swine at a range of protein levels, it has been assumed that the need is a constant percentage of the dietary protein. Few data are available to elucidate the exact relationship between the protein level and the amino acid need.

As mentioned previously, the Illinois studies have shown that the isoleucine and lysine requirements expressed as a percent of the protein are not the same at two levels of adequate protein intake. In fact, the isoleucine and lysine required in the protein decrease as the level of protein fed increases. There is a substantial amount of data with the chick to verify the principle that the required percentage of certain indispensable amino acids in the protein decreases in a fairly direct fashion as the protein level increases. With the pig, as well as the chick, it remains to be determined whether this interaction applies to all of the indispensable amino acids. However, tentatively it seems logical to assume that it does.

TABLE. 5. Calculated Amino Acid Needs of the Weanling Pig at Various Protein Levels (Per Cent of the Diet)

Amino acid	Calculated need at dietary protein levels of* 12%	14%	16%	18%	20%	22%	24%
Arginine	0.21	0.23	0.25	0.28	0.29	0.30	0.31
Histidine	0.19	0.21	0.23	0.24	0.26	0.27	0.28
Isoleucine	0.42	0.48	0.52	0.57	0.58	0.61	0.63
Leucine	0.57	0.63	0.67	0.74	0.77	0.81	0.83
Lysine	0.61	0.68	0.74	0.79	0.84	0.87	0.90
Methionine†	0.40	0.45	0.50	0.53	0.56	0.58	0.60
Phenylalanine†	0.44	0.49	0.54	0.58	0.61	0.63	0.65
Threonine	0.37	0.42	0.45	0.49	0.51	0.53	0.55
Tryptophan	0.10	0.11	0.12	0.13	0.14	0.15	0.15
Valine	0.38	0.43	0.46	0.50	0.52	0.54	0.56

*Calculation based upon the assumption that the requirement for all amino acids, expressed as a percentage of the protein, decreases linearly as the dietary protein increases. The rate of the decrease is the mean of that reported for isoleucine and lysine. The need for each amino acid, expressed as a per cent of the protein, was assumed to decrease 1.75% (from its value at 0% protein) per unit increase in per cent protein.

†Cystine and tyrosine can satisfy 40 and 30% of the total need for methionine and phenylalanine, respectively.

TABLE 6. Calculation of Minimum Amino Acid Levels Required in a 36% Protein Supplement

Amino acid	Requirement of weanling pig fed 16% protein (% of diet)	16% protein diet: 74 lb. corn	26 lb. supplement	Minimum level required in supplement (%)
Arginine	0.25	0.28	...	...
Histidine	0.23	0.16	0.07	0.27
Isoleucine	0.52	0.26	0.26	1.00
Leucine	0.67	0.78	...	...
Lysine	0.74	0.18	0.56	2.15
Methionine	0.30	0.14	0.16	0.62
Cystine	0.20	0.10	0.10	0.38
Threonine	0.45	0.23	0.22	0.85
Tryptophan	0.12	0.04	0.08	0.31
Valine	0.46	0.33	0.13	0.50
Phenylalanine	0.38	0.30	0.08	0.31
Tyrosine	0.16	0.33	...	...

So far, our knowledge of the amino acid needs of swine is limited to the young pig. Requirements of baby pigs, finishing pigs and breeding animals are not clearly defined.

FORMULATION OF GROWER SUPPLEMENTS ON AMINO ACID BASIS — Drylot supplements are formulated to contain about 36% protein, hence pigs selecting a 16% protein diet will consume a combination of approximately 74% corn and 26% supplement. In actual practice, weanling pigs may occasionally consume an even higher level of protein. However, with the calculations presented here, this greater protein consumption would provide a safety factor.

The calculations and minimum percentages of the various amino acids required in a 36% protein supplement are presented in Table 6.

Yellow corn consumed as 74% of the diet would fully satisfy the requirement of the pig for arginine and leucine. Therefore, there would be no requirement for these amino acids in the supplement. In addition, it will be noted that the amounts of histidine, valine and aromatic amino acids that must be provided in the supplement are relatively unimportant—less than 30% of the total requirement. On the other hand, the supplement plays an important role in the provision of adequate levels of the remaining amino acids. Lysine, tryptophan, isoleucine, methionine and threonine must be present in the supplement in sufficient concentration to supply 76, 67, 50, 53, and 49% of the total need, respectively.

Lysine and tryptophan are the primary amino acids required in the protein supplement. Under normal conditions, sufficient isoleucine and threonine are provided if the requirement for lysine and tryptophan is satisfied with the supplementary proteins. If the supplementary protein is supplied largely as soybean oil meal, then the level of methionine in the supplement may merit special attention, although corn-soybean oil meal rations fed as indicated in Table 1 are not improved by additional methionine.

CHOICE OF AMINO ACID SUPPLEMENTS IN GROWER-FINISHER RATIONS—Soybean oil meal is an outstanding source of supplementary amino acids for feeding swine. It may be noted in Table 6 that soybean oil meal will satisfy the required amino acids for a supplement fed with corn. It is marginal in sulfur-bearing amino acid content. However, recent studies have failed to demonstrate that a 16% protein ration consisting of fortified yellow corn and soybean oil meal is improved by supplementary methionine. The excellent amino acid distribution coupled with its low cost have made soybean oil meal the most popular source of supplementary amino acids in swine rations.

Of course, other supplements of varying amino acid distribution are available and may be used as price differentials warrant. However, the economy of such supplements must be determined on the basis of their ability to provide the essential supplementary amino acids rather than protein.

Calculated soybean oil meal replacement values for various amino acid supplements are presented in Table 7. In general, the ratings reflect the value of the various feeds to replace up to 50% of the soybean oil meal in a fortified corn-soybean oil meal ration containing 16% protein. All of the feeds contain as much or more methionine as soybean oil meal, and tryptophan is not likely to be deficient when the ration contains at least 10% of soybean oil meal. Hence, the replacement values of the supplements are calculated on their ability

TABLE 7. Soybean Oil Meal Replacement Value of Amino Acid Supplements in Grower-Finisher Rations

	Soybean oil meal replacement value*
Soybean oil meal (44%)	100
Cottonseed meal	116
Linseed meal	123
Sesame meal	122
Distillers solubles, dried	130
Fish meal, menhaden	85
Meat and bone scrap (50%)	99
Tankage (60%)	91
Blood meal	81
Skim milk, dried	104

*Pounds equivalent to 100 lb. soybean oil meal. Calculated values based upon the relative amount of supplements required in a 16% protein ration which contains 50% of the recommended level of soybean oil meal.

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TABLE 8. Recommended Vitamin and Mineral Levels for Swine Illinois 1959

Nutrient	Creep and starter rations	Grower ration	Finisher ration	Breeder ration
Fat-soluble vitamins				
Vitamin A, I.U./lb.	1500	1800	2200	2500
or carotene, mg./lb.	1.8	2.2	2.7	3.0
Vitamin D_3 I.U./lb.	300	150	75	150
Water-soluble vitamins				
Riboflavin, mg./lb.	1.5	1.0	0.85	1.0
Nicotinic acid, mg./lb.	12.0	8.0	6.0	8.0
Pantothenic acid, mg./lb.	7.5	5.5	5.0	5.5
Choline, mg./lb.	600.0	400.0	375.0	400.0
Vitamin B_{12}, mg./lb.	9.0	6.0	4.0	6.0
Minerals*				
Calcium, %	0.90	0.75	0.60	0.75
Phosphorus, %	0.60	0.50	0.40	0.50
Salt, %	0.50	0.50	0.35	0.50
Zinc, mg./lb.	30.0	30.0	20.0	30.0

*According to the National Research Council, tentative recommendations for certain trace minerals for normal growth and reproduction are 2 mg. copper, 15 mg. iron, .1 mg. iodine and 18 mg. manganese per pound of diet.

to provide lysine. The values are corrected for the variation in quantities required to replace soybean oil meal.

QUANTITATIVE VITAMIN AND MINERAL LEVELS IN SWINE RATIONS — The recommended vitamin and mineral levels of the various types of swine are presented in Table 8. Recommended levels are described for those vitamins and minerals which demand consideration when formulating practical swine rations, and it is not intended to be a complete description of the needs for these two classes of nutrients. For example, with rations containing 80% yellow corn, a deficiency of vitamin E, vitamin K, thiamine, pyridoxine, folic acid or biotin is unlikely. Likewise, magnesium, potassium and sulfur are not apt to be lacking in usual swine rations, and it seems that cobalt is not required in rations amply fortified with vitamin B_{12}.

FORTIFICATION OF SWINE RATIONS—With the values presented in Table 8 it is possible to calculate the amount of fortification required in ordinary swine rations. Since yellow corn and soybean oil meal are the main ingredients of midwestern swine rations, it is the vitamin and mineral deficiencies of these two feedstuffs which must be corrected. Hence, a combination of 80% yellow corn and 20% soybean oil meal has been employed as a typical mixture for the calculation of the supplementary level of vitamins and minerals. Of course, the level of supplementary nutrients varies with different rations, but vitamin additions may be very similar for all swine rations. This is true because the variable ingredients of swine rations do not exhibit a wide variation in vitamin content. Mineral additions, on the other hand, will be more variable and primarily affected by the level of animal by-products in the ration.

Vitamin Fortification—Of all the vitamins of concern, perhaps vitamin A presents the greatest problem. Since vitamin A requirements are directly proportional to bodyweight, the total daily vitamin A intake and the recommended level per pound of ration increases with increasing bodyweight. Furthermore, since creep rations and pig starters contain limited quantities of yellow corn, a greater part of the dietary vitamin A must be provided in supplementary forms than in the case of rations for more mature swine. In addition, vitamin A and provitamin A in feeds are readily destroyed. Ordinary, yellow corn may provide a considerable part or all of the vitamin A activity required in the rations of certain classes of swine. However, it is not a dependable source since it has been observed to

(Turn to SWINE RATIONS, page 59)

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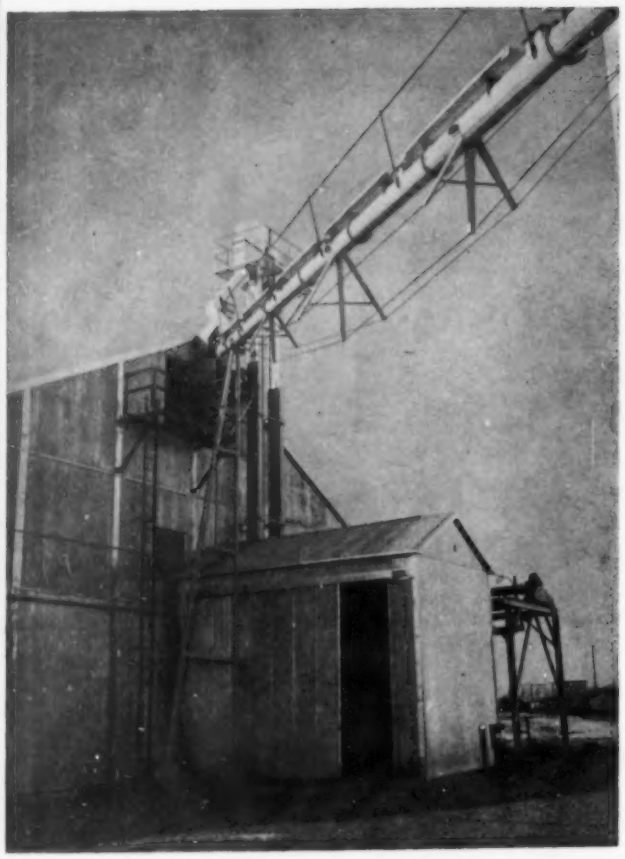

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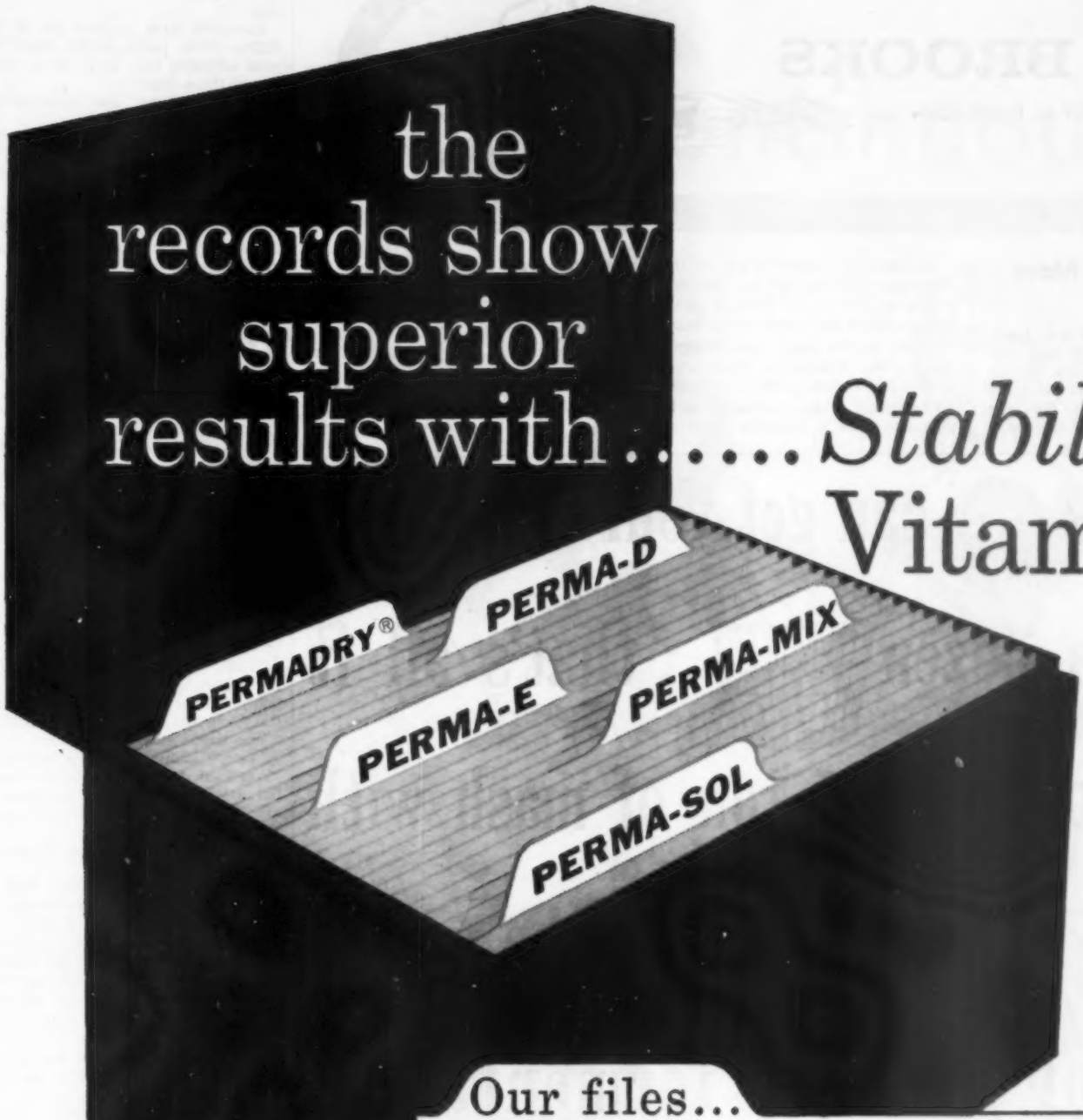

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JOE BROOKS

BY AL P. NELSON

Service Means Many Things

Bill Hampton, a heavy-set, jovial farmer, came ambling into Joe Brooks' feed mill. He saw Joe talking with Smiley Johnson behind the order desk, and called out, "Hi, Joe, are you still gettin' rich as fast as ever?"

Joe smiled. "I haven't got to that stage yet, Bill, but tell me how does it feel to pile it up? I need lessons from a fellow who really knows how."

"Well, I'll tell you," said Hampton slowly, "but first let me have a cup of that free coffee to wet my whistle."

Obediently, a quizzical smile on his face, Joe drew a generous sized cup of coffee from the urn. "Cream?" he asked.

"Yeah, a little."

Joe poured it in. "Sugar?" he asked.

Bill Hampton grunted. "Yeah, four lumps."

The four lumps went in, and Bill stirred the coffee with a wooden spoon. "Joe," he said, "you ought to get metal spoons. These wooden ones smell like hemlock."

"I'll check into it," Joe said agreeably.

Hampton took another sip of the coffee. "Joe, you'd better send out your weighing man to weigh my hogs one of these days."

"He'll be there," Joe said, making a note.

Bill Hampton stirred his coffee again. "Joe, I hear you have a free cattle grub outfit. I hear you rent it out free to customers."

"Yes," Joe said amiably. "Free if you buy the materials from us. You can keep it four days. Pick it up and bring it back deal."

"You don't deliver?"

Joe shook his head. "No, Bill, this is just a service item for customers. Saves them buying an outfit of their own. This way, they all get a chance to have cattle sprayed on a do-it-yourself basis."

"Be nice if you had some sweet rolls to go with this coffee, Joe. I'll take another cup. I'm dry this mornin'."

Joe poured another cup, added the cream. "Four lumps?" he asked, holding four above the cup.

Bill shook his head. "No, I only use three with the second cup."

Obediently, Joe put in three lumps, and put the fourth back into the carton. "We had sweet rolls this morning, but we ran out," he said. "Maybe next time you'll hit it luckier."

"Huh," grumbled Bill. "I'd better be luckier. Joe, the wife says to tell you you'd better have someone look at the flock. She thinks it needs cullin'."

Joe made another note.

"Gee," Hampton said enviously. "You feed dealers sure have it easy. No sales resistance to overcome at all. We farmers need you so much. We're trapped."

"We always like to be of service, Bill."

"I'm all out of rulers, Joe. You got any more of those red yardsticks you gave out at the spring party?"

Joe looked around. "Wait a minute, Bill. Maybe I have one." He went in his office and came out with one. "The last one," he said. "You're welcome to it."

More Gifts

Bill Hampton cleared his throat. "The wife wants to know if you have any of those cute little leather covered notebooks, Joe. You gave her one a year ago. It looks nice in her purse, she says. Not too commercial. But she did say next time you have some made, leave your name off entirely. The ladies will remember where they got them."

Joe reached under the counter and brought forth a book, a neat little notebook about 3 by 4 inches which

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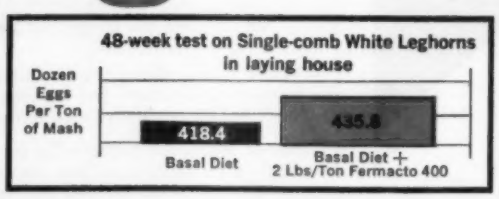
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any woman would love, for the cover was blue and leathery.

"Thanks," grunted Bill Hampton as he put the object in his pocket. He coughed a little. "By golly, I'm outa pencils, too. You know how it is. A farmer has to figure and figure and figure to come out on top these days. I use a lot of pencils."

Joe smiled and handed him three. Bill looked a little miffed because they weren't sharpened, but said nothing about it.

"You know, Joe, I wish I was a feed dealer, so I could make enough money so I could give customers all these little things. Of course, you make a big profit."

Joe smiled. "We don't make any too much money, Bill. You fellows want these things and so we just have to provide them. Let's say they are fringe benefits."

Bill sighed. "Yup, you feed dealers have been havin' it easy for many years, while the farmer worked. Now, it's our turn, Joe.

"I'll never forget the time a farmer got mad at a driver for another firm when the feed dealer wouldn't stake him to a storage tank. But, of course, now they all do.

"Have you increased your cash discount on feed, Joe?"

"No, why?"

Hampton shrugged. "Well, inflation is here, you know. Two percent cash discount today ain't the same as it was three years ago. You oughta up it to three."

Joe blinked. "If I do, I'll have to join the soup line. I'm havin' a hard time making a few per cent net on this business every year now."

Hampton grunted disbelief. "By the way, Joe, when your man brings out a load of poultry mash, wish he could give my wife a hand cleaning the chicken coop. The hired hand's got blood poisoning and I'm busy with corn harvest."

Joe made no answer to that. He knew that Bill Hampton was just stringing him along on free service, and yet, there was much truth behind Bill's words. What he was asking for was what many farmers actually expect of a feed dealer. Some get it in part or in whole, depending on the dealer.

"By the way," Joe asked courteously, as Bill prepared to go, "you were going to tell me how to pile it up."

Bill Hampton chuckled. "Oh, was I? Well, I ain't got time now, Joe. Just stick to your knittin' in the meantime and work hard to give farmers the service they got coming to them. Next trip in, I'll elucidate further, my friend."

"Good," Joe grinned. "I'll be studying—and waiting."

Turkey Supervisor for Supersweet Named

MINNEAPOLIS — Robert S. Wee has been named turkey flock supervisor in northwestern Minnesota for Supersweet Feeds, International Milling Co., Minneapolis.

Robert S. Wee

Mr. Wee started in the turkey business by operating his own hatchery at Moorhead, Minn. A specialist in turkey diseases and management, he has spent more than 15 years in this field. A native of Dawson, Minn., he attended Hamline University in St. Paul. He will make his headquarters in Detroit Lakes, Minn.

STORE OWNER DIES

SPOKANE, WASH. — Fred A. Young, 60, owner of Fred's Feed & Seed Store, died recently. Surviving are his widow, Rose; two sons, Richard A. and Donald E., and a daughter, Margaret A. Young, all of Spokane; two brothers, William Young of Lewiston, Idaho, and Lee Young of Spokane.

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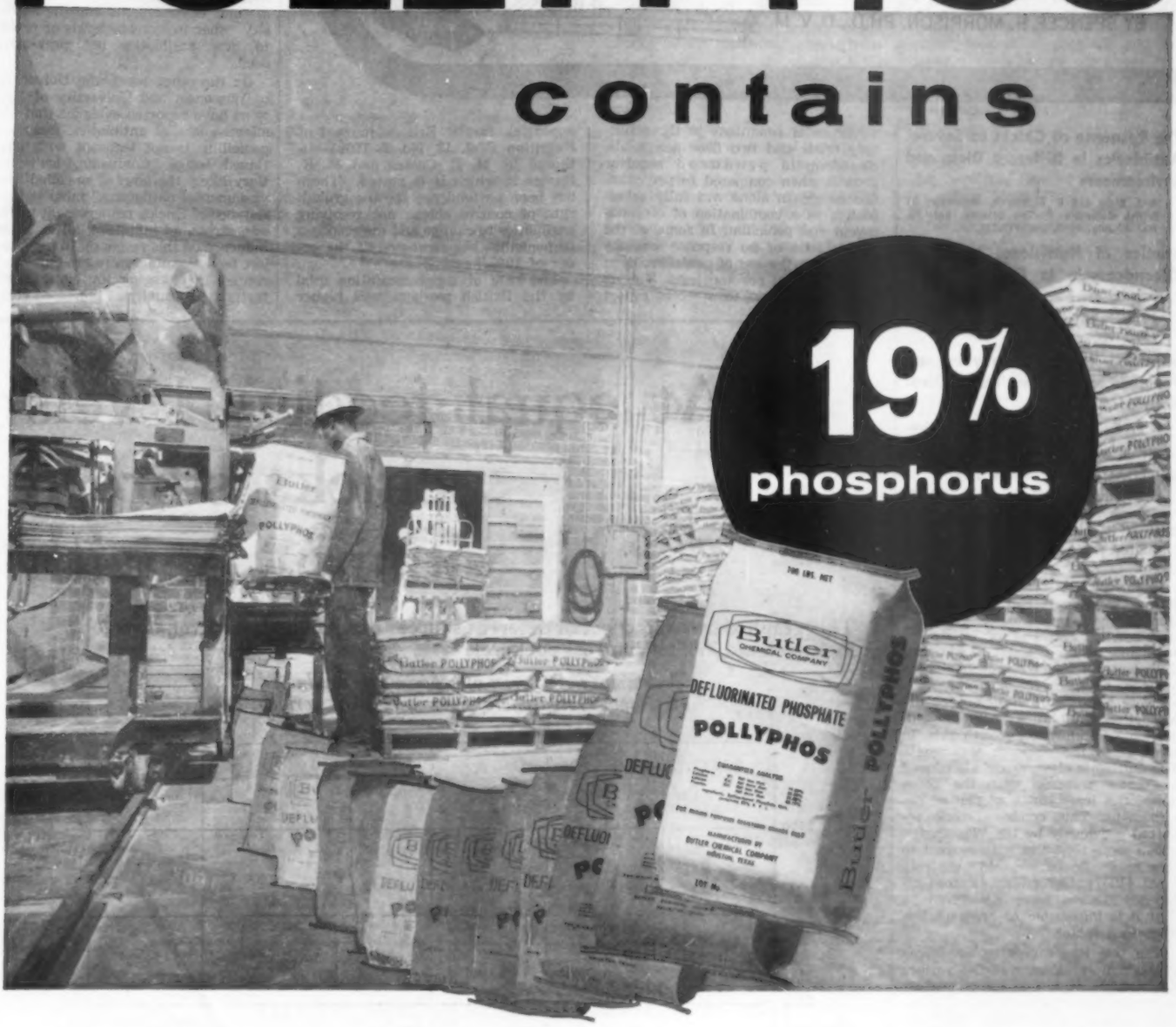

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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

The Response of Chicks to Several Antibiotics in Different Diets and Environments

● J. Bioly and B. E. March, University of British Columbia; Poultry Science, Vol. 38, No. 4, July, 1959, pp. 771-774.

Studies of Nutritional Levels of Oleandomycin in Broiler Rations

● W. C. Sherman, G. A. Donovan, W. M. Reynolds and H. G. Luther, Chas. Pfizer & Co.; Poultry Science, Vol. 38, No. 4, July, 1959, pp. 869-873.

Influence of Oleandomycin and Penicillin on Intestinal Tract Microflora of Chickens

● K. E. Price and Z. Zolli, Jr., Chas. Pfizer & Co.; Poultry Science, Vol. 38, No. 4, July, 1959, pp. 873-877.

ABSTRACT AND COMMENT

Although the experimental methods varied somewhat as befitted the objectives desired, all of these trials evaluated the new antibiotic oleandomycin.

In the British Columbia work two dietary treatments and two environmental treatments were used to determine the response of chicks to supplementary amounts of either oleandomycin, chlortetracycline, penicillin or oxytetracycline. Levels tested were 5, 10, 2.5 and 10 mg. of the respective antibiotics. Although all antibiotics stimulated growth rate, in some cases the response was small. The antibiotic oleandomycin produced a greater response than the other antibiotics irrespective of diet or environment. This confirms work reported previously by the Washington group some time ago with respect to this antibiotic in an "old" environment (1957). Unfortunately, feed efficiency figures were not given so that it is impossible to evaluate this important factor.

The two Pfizer reports have been given in part at some of the various nutritional conferences by various personnel around the country. The results showed that under "old" environmental conditions in three battery trials and two floor pen trials, oleandomycin produced superior growth when compared to penicillin. Oleandomycin alone was fully as effective as a combination of oleandomycin and penicillin. In some of the trials, little or no response was secured with the use of penicillin, even at the 10 gm. per ton level. This is in direct contrast to a recent report appearing in the British Journal of Nutrition (Vol. 13, No. 2, 1959) authored by M. E. Coates and M. K. Davies in which it is stated, "There has been no tendency for the growth rate of control chicks not receiving antibiotics to change and the response to penicillin has remained of the order of 10%."

The rate of supplementation used by the British workers was higher than commonly used in America, being 25 gm. per ton. This may have given the different results, but 25 gm. per ton is far below the so-called "therapeutic" level.

Laboratories in this country differ in their responses to antibiotics as witness the results from British Columbia, Washington, USDA, etc., showing evidence of reduced response in "old" environments and the necessity either to increase levels or resort to new antibiotics not previously used.

On the other hand, the University of Wisconsin and University of Missouri have reported evidence that the effectiveness of antibiotics, including penicillin, is not lessened with continued usage. Confusing, isn't it? Very likely the level of so-called "environmental pathogens," inherited resistance of chicks, management methods, stress, ad infinitum, all exert an influence on this response. In my opinion, feed manufacturers are only warranted in changing antibiotics (unfortunately usually at increased cost)

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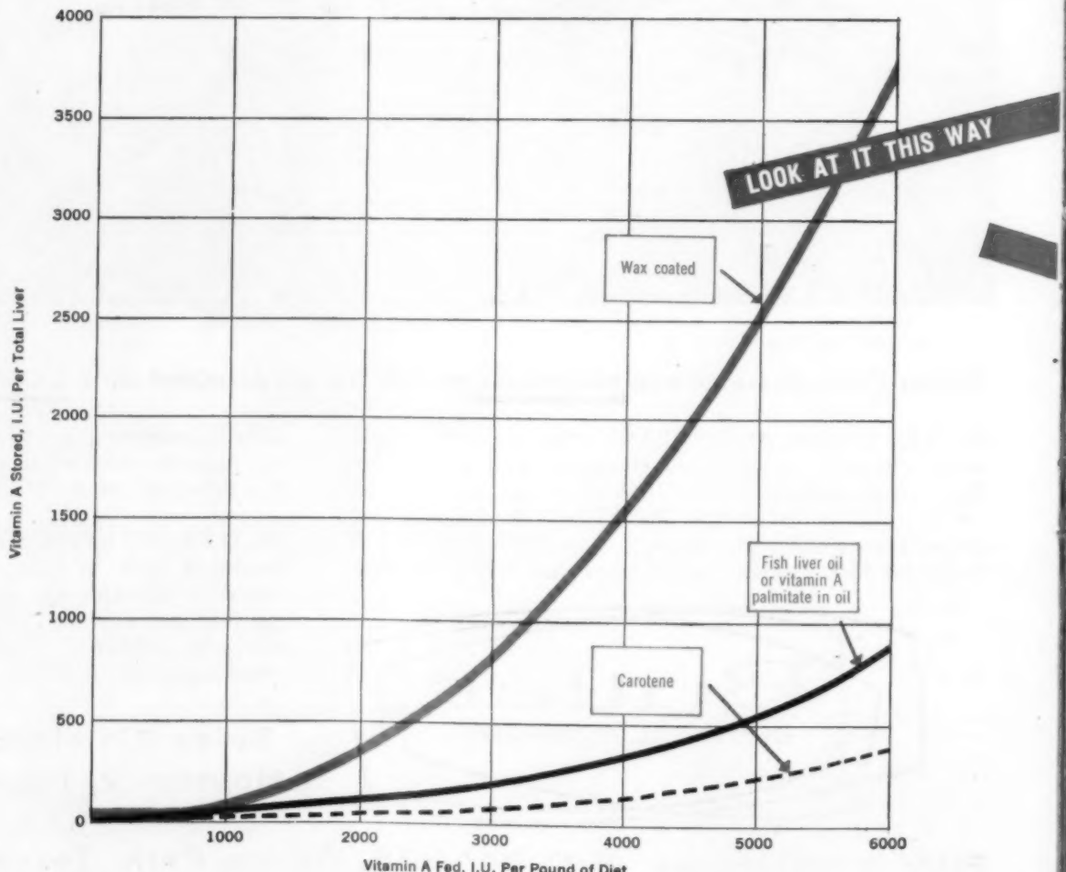

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when responses are no longer consistently secured under their own field conditions.

The Pfizer paper by Price and Zolli is interesting because it points out that, in their opinion, the decreased growth response due to continued use of penicillin is not due to penicillin resistant organisms as is commonly believed by many armchair experts.

Timely and Worth Noting

The present methods of assaying estrogen-like substance in forage crops depend either upon time consuming chemical or spectrophotometric methods if their composition is known, and if of uncertain composition, upon bioassays of various kinds. A simple 3-day method using female mice 20-21 days old and weighing 8 to 12 grams, has been developed by the University of British Columbia workers to quantitatively determine the estrogen-like substances in forages as applied to red clover and oats. (Canadian Journal of Animal Science, Vol. 39, No. 1, pp. 6-13—Kitts, Swierstra, Brink and Wood).

Diethylstilbestrol is used as reference compound to establish a dose response curve. From this curve the estrogenic activity of plant material can be estimated and expressed in terms of diethylstilbestrol.

Under British Columbia conditions it was found that samples of both first and second-year growths of red clover possessed considerable estrogenic activity. The level of the estrogenic substances was highest in the spring and decreased towards autumn. It was also shown that possibly the reproductive status of the plant (i.e. vegetable stage) was correlated with estrogenic content, since samples of first and second year growths cut in the same week each year showed different estrogenic levels — with the first year growth showing higher levels. Victory oats grown under the same conditions showed little or no estrogenic activity at any time during the growing season.

Los Angeles Grain Terminal Announced

LOS ANGELES—Southern California's first marine grain terminal will go into operation about Dec. 1 at Los Angeles Harbor, it was announced recently by Bernard J. Caughlin, the municipal port's general manager.

Shipments of wheat, barley, milo, alfalfa pellets and other grains from the southwestern part of the U.S., from as far inland as Kansas, will pour through the $410,000 facility, he predicted.

The exports will go mainly to India and Japan, with some shipments to Hawaii, according to Mr. Caughlin. Imports will consist mostly of copra meal and copra cake from the Philippines. The equipment will be geared to load 500 tons (17,000 bu.) or unload 300 tons (10,200 bu.) an hour.

The system is expected to handle 100,000 tons during its first year of operation.

G.T.A. Acquires Great Plains Seed Company

ST. PAUL—Farmers Union Grain Terminal Assn., St. Paul, has announced the purchase of the Great Plains Seed Co., Sioux Falls, S.D.

M. W. Thatcher, the grain cooperative's general manager, said acquisition of the 25-year-old seed business, formerly owned by the Richard Gage family, took effect Aug. 15. The purchase price was not disclosed. The new Sioux Falls unit will keep its office in that city, and will continue to be managed by J. M. Gage.

The purchase, Mr. Thatcher said, expands GTA's feed, seed and farm chemical service in South Dakota and western Minnesota. The seed processing plant and warehouse at Ellis is also in a key location to serve as a central distributing point for livestock and poultry feeds until a new GTA feed mill is built, he commented.

The cooperative's seed plants at Williston and Minot, N.D., which process and distribute field seeds in Montana, North Dakota and northwestern Minnesota will be supplemented by the new Sioux Falls unit.

General Mills Builds

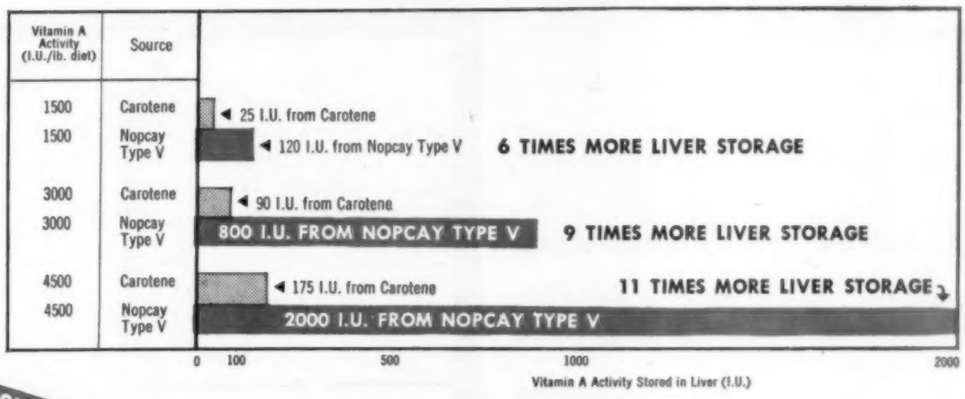
GREAT FALLS, MONT.—Opening of a new 160,000-bu. capacity elevator at Rudyard by General Mills, Inc., has been announced by T. R. Scully, manager of the firm's Montana grain operations.

The first all-steel grain elevator to be built in Montana using square steel elevator bins, the structure incorporates the most recent ideas in this type of construction, Mr. Scully said.

The elevator has two legs, with each having a handling capacity of 5,000 bu. of wheat an hour. Talcott Tank Co. of Great Falls was the building contractor.

# of vitamin A and carotene to 11 times more Nopcay® Type V

LIVER STORAGE OF VITAMIN A



OR LOOK AT IT THIS WAY

RELATIVE BIOLOGICAL EFFECTIVENESS OF VARIOUS VITAMIN A SOURCES FOR 4-WEEK-OLD BROILERS

Vitamin A Source	Desired Liver Storage Level, (I.U./total liver)	Level Required in Feed (I.U./lb.)	Ratio of Biological Effectiveness of Vitamin A Compared to Carotene	
			Individual Readings	Average
Natural Carotene (alfalfa meal and cornmeal)	250	5000	1.0*	1.0*
	500	6400	1.0*	
	1000	7600	1.0*	
Fish Liver Oil or Vitamin A Palmitate in Oil	250	3600	1.4	1.3
	500	4800	1.3	
	1000	6100	1.2	
Nopcay Type V	250	1900	2.6	2.6
	500	2400	2.7	
	1000	3200	2.4	

*Carotene used as a standard and assigned a value of 1.0

CAROTENE IS NOT ENOUGH—NOPCAY† TYPE V OFFERS THE BEST SAFETY MARGIN FOR STRESS PERIODS

†*Nopcay is the trade name of Nopco's Micratized® Vitamin A*

NOPCO

NOPCO CHEMICAL COMPANY

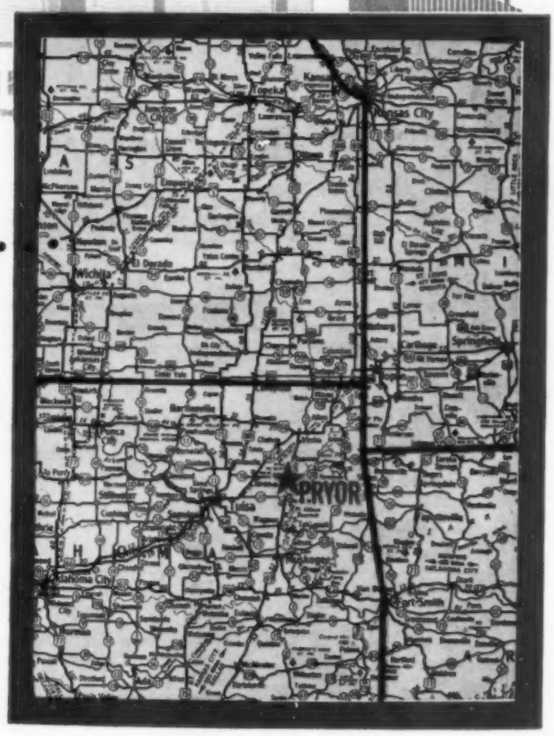
GENERAL OFFICES: 60 Park Place, Newark, N.J. PLANTS: Harrison, N.J. • Peoria, Ill. • Richmond, Calif.

GIVE HIM A TIP HE'LL THANK YOU FOR

Remind him to order Morton T-M Salt. See page 61.

JOHN DEERE UREA

Feed Compound



Conveniently located on your way . . .

By rail or by truck . . . Buy JOHN DEERE FEED UREA . . . it's uniform, flows freely, and will stay thoroughly and evenly mixed in your feeds.

Whenever your trucks are in Northeastern Oklahoma put them to good use—pick up a load of JOHN DEERE FEED UREA at Pryor. For your service and convenience, loading facilities are available seven days a week.

Remember, whether by truck or rail, you can always depend on getting fast, dependable service—plus highest quality urea—from John Deere. Order now—while you're at it, ask for your copy of our new booklet "How to Use Urea."

Quality You Know . . . A Name You Trust!

JOHN DEERE

Grand River Chemical Division of

DEERE & COMPANY

PRYOR, OKLAHOMA • PHONE VAlley 5-2000

Heavy White Breed Poult Production Again Shows Increase

WASHINGTON — Hatchery production of heavy white breed turkey poults again showed an increase in July, while output of other heavy breeds again decreased from a year earlier, the U.S. Department of Agriculture reported. The light breed hatch in July also was down from 1958 after showing increases in previous months.

All told, turkey poult production in July, a seasonally low month, totaled some 5.9 million—off 9% from a year earlier. With the additional decreases, in July, the total for all breeds to date this year is now only 3% ahead of 1958. About 80.5 million poults were hatched in the first seven months of 1959, compared with 78.2 million a year earlier.

Heavy white poult output in July was about 2 million, or 28% more than in July last year. For the year to date, the heavy white hatch is up 30% over the same period in 1958.

The hatch of other heavy breeds (mostly bronze) was also about 2 million in July; this was 8% less than a year earlier. For the January-July period, the total was down 7% from 1958. The number of all heavy breeds hatched during these months was about the same as a year earlier.

The light breed hatch in July was some 1.8 million, down 10% from a year earlier. However, for the January-July period, the light breed hatch was up 23%.

Based on eggs in incubators, indications are for an increase in the August hatch of heavy white breed poults but decreases for light breed and other heavy breed poults.

Several Appointments Named by Cyanamid

NEW YORK—Frank H. Cappy, advertising manager for the agricultural division of American Cyanamid Co., has been assigned additional responsibilities for public relations and packaging development, it was announced recently by B. F. Bowman, divisional marketing director.

Mr. Bowman also announced the appointment of promotion managers for each of the division's three basic product categories.

Appointed to the newly created posts are R. G. Tousey, phosphates and nitrogen department; E. B. Shaw, pesticides, and S. B. Bromley, animal industry products. Dr. L. W. Groves was named assistant promotion manager for animal industry products.

The new managers will be responsible for all phases of sales promotion and advertising for the firm's product lines, Mr. Bowman said.

Pelco Representative

PORTLAND, ORE.—H. J. Stoll & Sons, feed concentrate firm, has been appointed sales representative for Pelco Co., Jefferson, Ore. All alfalfa meal, alfalfa pellets and screening pellets produced by Pelco will be sold, distributed and invoiced by the Stoll firm.

Bemis Notes Gains In Income, Sales

ST. LOUIS — Sales of Bemis Bro. Bag Co. and subsidiaries for the first six months of this year totaled $64,069,940, up 11% over 1958. The company's net income of $1,313,038 was 14% higher than the comparable period of last year.

After taxes and preferred dividends, earnings per share of the company's common stock were $1.84 compared with $1.62 for the first half of 1958.

In a quarterly report to stockholders, F. G. Bemis, president, said:

"The company's sales and earnings for 1959 continued to show appreciable improvement over 1958. We are now entering a period of normal seasonal upturn and — unless a prolonged steel strike seriously disrupts the economy—our third quarter results should be better than those of the second quarter."

HUSTLER

NOR-VELL GYRATORY SCREEN

Crumbling and Screening — 1 to 4 sieves

The newest idea in coarse cleaning. High capacity, dependable, economical. Large cloth area in a limited space. Heavily constructed screen gives long, trouble-free service. Truly balanced, self-contained in one simple unit.

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FORT SCOTT, KANSAS
The Name That Means Better Sifting

Formula to Fatten your Profits:

VERSATILITY + SPEED + BIG CAPACITY

MODEL FB-T

DORSEY BULKMASTER SELF-UNLOADING TRANSPORT

Whatever your dry bulk cargo may be, this new Bulkmaster is engineered to *cut delivery time and costs.* So efficient it makes light work of stubborn materials and ruggedly-built with quality features that insure trouble-free operation: Tandem hydraulic pump, powered by 25-hp air-cooled gasoline engine, operates rubber belt conveyor which is riveted to a 36" heavy-duty steel conveyor chain, and elevators.

The versatile unit pit dumps or can be equipped with 14-foot folding or rigid full-swiveling 18"-wide endless-belt conveyor. Discharge is in excess of a ton per minute. Other outstanding features include:

- ALL STEEL ELECTRICALLY-WELDED BODY
- TAILORED HEAVY-DUTY TARPAULIN AND BOWS
- ICC-APPROVED LIGHTS, REFLECTORS AND REAR DIRECTIONALS
- REAR FENDERS WITH MUD FLAPS
- 20,000-LB AXLES
- STEEL SPOKE WHEELS
- TWO-SPEED LANDING GEAR

DORSEY

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ELBA, ALABAMA

For more information MAIL COUPON TODAY!

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RUSH literature on the Model FB-T

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Herman Nagel's
Trace Mineral
CONCENTRATE

Where only trace minerals are to be added, Herman Nagel's Trace Mineral Concentrate supplies all eight, in correct balance.

THE HERMAN NAGEL CO.
53 W. Jackson Blvd., Chicago 4, Ill.

The buy is BACIFERM®..

Selective Action Means
DANGEROUS BACTERIA ARE CONTROLLED

Selective Action Means
BENEFICIAL BACTERIA ARE NOT HARMED

BEWARE THE BAD BACTERIA!

These are "gram-positives" – the harmful bacteria that produce secondary disease, invade the tissues, and form pus and poisonous toxins . . . and, the free-loading gluttons in the intestinal tract that live off the nutrient material that should go to the bird or animal, but doesn't.

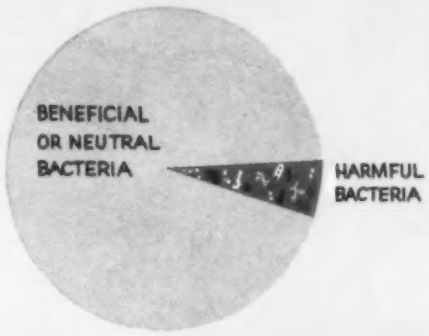
STRIKE WHERE THEY LIVE!

It's when many of the harmful bacteria escape from the gut that they become dangerous. The place to control them – and the only place – is in the intestinal tract – before they invade the tissues, organs and glands.

Buy BACIFERM...

zinc bacitracin antibiotic supplements

.selective action is the pay-off!



BACTERIA AREN'T ALL BAD!

Of all the bacteria normally present in the intestinal tract of the chicken, the turkey or the pig, only about 5% are harmful. The rest are beneficial or, at worst, neutral. In healthy animals, a proper balance is maintained among the many kinds of microorganisms normally present in the intestinal tract, thus assuring adequate nutrition.

MEET THE FRIENDLY COLIFORMS!

These are the beneficial "gram-negative" bacteria – the productive "farmers" in the digestive tract that "raise" valuable B vitamins. Some antibiotics destroy friendly coliforms, change the normal population balance, and allow harmful, resistant bacteria and abnormal microorganisms to multiply. Baciferm's selective action destroys dangerous bacteria without harming beneficial bacteria.

BACIFERM TO THE RESCUE!

Baciferm, the zinc bacitracin antibiotic supplement, does all its work in the intestinal tract – maintains an effective concentration from one end of the tract to the other. And zinc bacitracin does its job selectively. No indiscriminate destruction of "good" and "bad" bacteria alike – as in the case of some other antibiotics.

The buy is Baciferm – selective action is the pay-off. But that's not all. Only Baciferm contains bacitracin in the zinc form–made under Patent No. 2,809,892. And CSC's zinc bacitracin is not merely antibiotic on an inert carrier – it also supplies B vitamins, high protein, vitamin K and unidentified growth factors.

Anything else? Yes! More and more feed manufacturers want the full bactericidal action of Baciferm because the older "broad spectrum" bacteriostatic antibiotics seem to have lost their punch, appear to have built up resistant strains of bacteria. You can add Baciferm to each ton of feed for $2 to $4 less than the tetracyclines. The buy is Baciferm.

CSC

Animal Nutrition Department

COMMERCIAL SOLVENTS CORPORATION

260 Madison Avenue, New York 16, N. Y.

IN MEXICO: Comsolmex, S.A., Mexico 7, D.F.

CANADIAN SALES REPRESENTATIVE: Norman Stark

that's being selective!

Legislation Blamed For Blighting Future Of Soybean Industry

ST. LOUIS — "Legislative blundering" was blamed for blighting the future of the soybean industry by John H. MacMillan, Jr., chairman, Cargill, Inc., Minneapolis, Minn., in a talk during the recent annual meeting of the National Soybean Processors Assn. here. He said market development for supported farm crops has been stifled under present farm laws.

Mr. MacMillan declared that increased production of beans due to greater acreage, efficiency and yield per acre, high domestic use of soybean oil and meal due to better diets and greater populations, stepped-up exports due to lower production costs and effective demand are inevitable, "given only realistic farm laws."

He noted, however, that soybean plantings are down this year, "despite real demand," because crop supports cause farmers to "prefer to produce corn for government bins rather than soybeans for consumption."

The oilseed processors were told that nearly 80% of price support funds go to larger commercial farms, but that 56% of farms—small and classified as "marginal"—get "little or no meaningful aid." Mr. MacMillan called for immediate expansion of the government's Rural Development Program to encourage uneconomic farm units to change to more productive and rewarding efforts. Then, he said, "our larger, efficient farms—almost all of which are family owned and operated—could be freed of controls to produce for prices that would create great new world markets."

World Markets

Discussing U.S. soybean oil in world markets, D. J. Bunnell, buying vice president, Lever Brothers Co., said soybean crushers have a problem in that disposal of oil surpluses presents more difficulty than does disposal of the protein. "More severe competition between soybean and cottonseed oil and lard can hardly be avoided," he said.

"Hog and poultry producers are likely to operate under very slender margins," Mr. Bunnell continued. "If oil and meal proceeds decline more than the cut in the oilseed support levels, it is possible that we could see the government re-enter the cottonseed market, or a buying program could emerge for soybean oil."

Mr. Bunnell noted that Europe's "infant" broiler industry is developing into a growing local market for soybean meal. "In the crop year 1958-59," he said, "western Europe will have produced 475 million pounds of soybean oil from American beans. Added to this total have been some unimportant quantities of soybeans from China. . . .

"Crushers in Germany, Holland, Belgium and Denmark buy American soybeans free of duty and can usually offer oil below the duty-paid cost of soybean oil produced in America. Much will depend upon the future course of meal markets on each side of the Atlantic, but it would take an unexpected development to bring even limited increase in the demand for U.S. produced soybean oil."

Officers Elected

Glenn Pogeler, North Iowa Cooperative Processing Assn., Mason City, Iowa, was elected the association's chairman of the board of directors, succeeding M. D. McVay, Cargill, Inc. Vice chairman of the board is Donald B. Walker, Ralston Purina Co., St. Louis. Other officers are R. G. Houghtlin, Chicago, president; William King Self, Riverside Oil Mill, Marks, Miss., secretary, and Scott E. Cramer, Swift & Co., Chicago, treasurer.

The following directors were elected to serve the three-year term ending September, 1962: R. E. Alexander, The Pillsbury Co., Clinton, Iowa; A. M. Convis, Funk Bros. Seed Co., Bloomington, Ill.; Dwight L. Dannen, Dannen Mills, Inc., St. Joseph, Mo.; Ralph S. Moore, Soy-Rich Products, Inc., Wichita, Kansas; A. I. Reisz, Ohio Valley Soybean Cooperative, Henderson, Ky., and Irving Rosen, Quincy Soybean Products Co., Quincy, Ill.

The unexpired terms of A. C. Hoehne and S. E. Cramer were filled by Ralph Bruce, Archer-Daniels-Midland Co., Minneapolis, and Ben R. Barbee, Anderson, Clayton & Co., Abilene, Texas.

Hold-over directors are: D. O. Andreas, Honeymead Products Co., Mankato, Minn.; Sewall D. Andrews, Jr., General Mills, Inc., Minneapolis; Earl J. Brubaker, The Borden Co., New York, N.Y.; R. G. Golseth, Lauhoff Soya Co., Danville, Ill.; W. E. Huge, Central Soya Co., Inc., Fort Wayne, Ind.; R. B. Jude, Spencer Kellogg & Sons, Inc., Buffalo, N.Y.; Harris T. Lyon, Allied Mills, Inc., Chicago; Donald C. Ogg, Iowa Soya Co., Redfield, Iowa; E. E. Rhodes, A. E. Staley Manufacturing Co., Decatur, Ill., and R. B. Williams, Buckeye cotton oil division, Buckeye Cellulose Corp., Cincinnati, Ohio.

R. B. Jude and Sewall D. Andrews, Jr., were elected to the executive committee to serve two-year terms expiring September, 1961. The other hold-over directors on the executive committee, with terms ending September, 1960, are R. G. Golseth and E. E. Rhodes.

Protests Rate Proposal For Soybean Meal

MEMPHIS, TENN.—The National Cottonseed Products Assn., Inc., has joined other groups in protesting a proposal that would substantially reduce freight rates on soybean oil meal moving Southbound, but would not provide comparable reductions on cottonseed oil meal moving Northbound.

The NCPA, acting jointly with the North Carolina, South Carolina and Southeastern Cottonseed Crushers Associations, filed the protest with the Interstate Commerce Commission.

The proposal, said NCPA headquarters here, also would further complicate an already confused and varied group of freight rates applicable to cottonseed and competing protein meals.

Power Shovel Buy!

This little powerhouse, weighing in at just 286 pounds, will astonish you with its king-size pulling force of more than 1300 pounds and work output of 100 tons per hours . . . far exceeding many machines costing nearly twice as much.

And here's the best feature of all . . . the low, low price it carries. Dollar for dollar, pound for pound, the rugged ROTO SHOVEL gives you more . . . in ease of handling, capacity, and dependable, money-saving results . . . than any other power shovel on the market.

One man handles it with ease with positive push-button, finger-tip control. You get instant stop-start action you can count on . . . just push the button and the ROTO SHOVEL does the work. Because it's light, it's completely portable, too. Wheel it from job to job . . . fold back the retractable wheels when it's in use.

We wish that this small space permitted us to tell you the many more outstanding features and abilities of the remarkable STOHR ROTO SHOVEL. Since it doesn't, we hope you'll take this opportunity to mail this coupon. We'll give you the whole story . . . without obligation, of course.

NEW CATALOG NOW AVAILABLE
Seedburo's new 1959-1960 catalog of complete testing, grading, and handling equipment has just been published. If you haven't received one, write for your free copy.

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SEED TRADE REPORTING BUREAU
EQUIPMENT COMPANY
618 WEST JACKSON BLVD. CHICAGO, ILLINOIS

There's more in STOHR for YOU

FINGERTIP CONTROL — Stop or start instantly with a touch of the simple push-button control.
COMPLETELY PORTABLE — Wheel it from job to job. Winch unit so compact you can carry it in the trunk of your car.
ONE-MAN OPERATION — Elimination of counterweights and heavy cable drums makes this a simple one man job. He pushes the button . . . this shovel does the work.
PIVOTING WINCH UNIT — Mounted on a ballbearing turnring to always face directly toward the pull. Gives you greater power and eliminates cable wear.
PATENTED CABLE—Lightweight coaxial steel cable excels all others tested for strength and durability.
EXCLUSIVE DRUM DESIGN — Special V-type design feeds cable smoothly, eliminates jamming and fouling.
ENCLOSED HOUSING — Reduction gear runs in an oil-bath and clutch parts are housed in enclosed casing.

You'll Use It For
UNLOADING BOXCARS • EMPTYING TRUCKS
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You'll also find it ideal for many other jobs as well . . . soil disposal, leveling, filling, and even snow removal. Sand, gravel, fertilizer, coal, cement . . . these are just a few of the many other materials it will handle.

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Gentlemen:
Please send me complete information on the new STOHR ROTO SHOVEL.
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takes the waste out of phosphorus feeding

- **Ends the need to add unnecessary margins of safety**
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- **Provides proven high phosphate availability with low calcium content**
- **Makes it unprofitable to over-fortify with phosphates of low availability**

Buying "second best" feed phosphates to cut formulation costs is false economy. Second best or low cost sources actually waste phosphorus because much of the phosphorus isn't available—can't be used by livestock or poultry.

This makes feeding inferior phosphates an expensive business, especially when compared with the readily available phosphorus provided by International's Dynamic DYNAFOS.

Biological availability tests prove DYNAFOS is today's superior dicalcium phosphate. It is chemically processed and purified . . . low in calcium too. DYNAFOS delivers more available phosphorus in every pound—out-performs phosphates of low availability even under practical conditions . . . ends the need to add unnecessary margins of safety.

You cut formulation costs because you actually need less Dynamic DYNAFOS. And unique beaded form makes handling and mixing better than ever. Write or wire your International representative for details.

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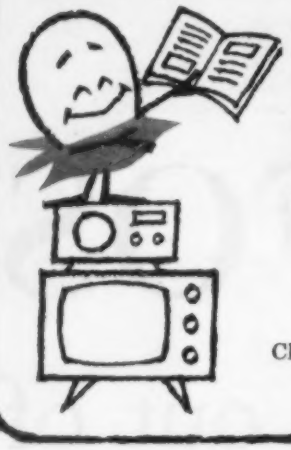
CONSUMER PROMOTION



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ULTRA-LIFE OFFICERS—Sitting at the head table during a banquet following a recent sales meeting in St. Louis are officers of Ultra-Life Laboratories, Inc., and guests. They are, left to right: Glenn Andrews, vice president; Mrs. Andrews; Mrs. Edward C. Andrews, secretary and chairman of the board; Mrs. E. L. McKee; E. L. McKee, president and general manager; Mrs. Robert L. Steinhauser; Mrs. Nelson Winslade, second vice president, and Robert L. Steinhauser, treasurer.

Ultra-Life Unveils New Blender-Grinder

ST. LOUIS—The addition of a blender-grinder to the product line of Ultra-Life Laboratories, Inc., East St. Louis, Ill., was cited here in Hotel Mayfair by E. L. McKee, president and general manager, following a recent 10-day sales meeting conducted by the firm, manufacturer of vitamin and trace mineral products.

The Ultra-Life blender-grinder, he said, "enables large feeders to produce quality feeds—with 'super concentrates' supplied by Ultra-Life feed manufacturers and with Ultra-Life Laboratories supplying formulas, laboratory testing and nutritional advice."

He said the blender-grinder is a new addition to the "4-Step Ultra-Life Program" for the independent feed manufacturer. "It will enable independent feed manufacturers to make money on large volume concentrate business, which they formerly could not handle profitably," he said.

Mention of the blender-grinder came during a banquet given by Mr. and Mrs. McKee for more than 100 guests. Mr. McKee told the gathering that the occasion was the first time in his 48 years in the feed and feed fortification business that he had to turn down orders because of a "sold out" condition, referring to the blender-grinder unveiled at the American Poultry & Hatchery Federation convention in St. Louis in July. Mr. McKee added that the blender-grinder had received "such enthusiastic interest that the entire production was booked up for 80 days in advance."

Phil-Co Sells Stock

MALTA, MONT.—Sale of stock in the Phil-Co Feeds, Inc., rolling and pelleting mill, has exceeded the halfway mark. Approximately $75,000 will be needed to construct the necessary facilities and purchase the machinery to operate the mill, according to estimates by the directors.

Present facilities of the Phillips County Marketing Assn. will be operated by the new corporation. A feed rolling and pelleting mill will be constructed east of the present building. The seed business of the marketing association will be continued.

DAWE'S PRESCRIPTION SERVICE

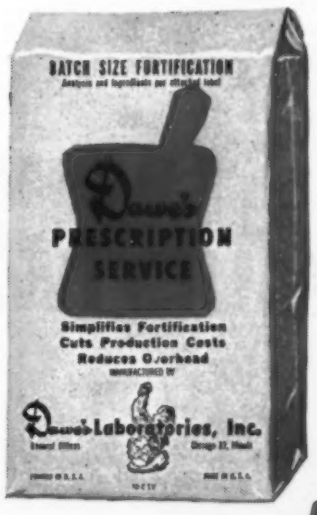
SKILL ACCURACY and DEPENDABILITY

. . . in compounding feed fortifiers

Dawe's Prescription Service brings you the ultimate in convenience, economy and dependability for your multiple-factor feed fortifiers. This personalized service custom-blends and custom-packages any practical combination and potency of vitamins, medicaments, or other additives, to your precise specifications.

Consider these important advantages of Dawe's Prescription Service. Batch-size packaging streamlines and simplifies your production. You save the time and expense of proportioning and premixing micro-ingredients, minimize the chances of costly errors and avoid unbalanced inventories of individual ingredients. One order replaces scattered buying.

Write for quotations on your feed fortifiers dependably compounded and packaged to your requirements. You'll like Dawe's consistent, uniform quality and fast, personalized service.



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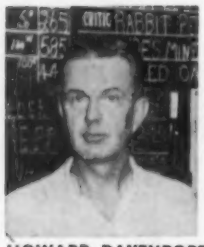
POULTRY NUTRITION RESEARCH—W. T. Diamond (center), secretary-treasurer of the American Feed Manufacturers Assn., is shown presenting the AFMA annual $1,000 poultry nutrition research award to Dr. Hans Fisher (left), Rutgers University. Dr. L. D. Matterson (right), University of Connecticut, winner of a similar award in 1957, was chairman of the Poultry Science Assn. research committee that selected the winner. The presentation was made at the closing session of the 42nd annual meeting of the association at Iowa State University.

CRITICally speaking



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HOWARD DAVENPORT • Manager of Wrights Elevator

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- CRITIC gives you financial and technical assistance in establishing your grind-mix operation.
- CRITIC holds training schools for your salesmen and personnel.
- CRITIC furnishes bulk concentrates by rail or truck for extra profits and less labor.
- CRITIC offers a *complete* line of quality-controlled concentrates and supplements.
- CRITIC formulas are nutritionally correct, easy to mix, and easy to sell.

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Please Rush without obligation, complete details on how CRITIC can help us establish a profitable Grinding and Mixing Program.

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Mixers Take 5-3 Win In Fun Day Softball

By DUKE KENNEDY
Special Sports Writer

SOMERSET, WIS.—A combination of a beautiful day, a fine stadium and tubs of suds provided the setting for a terrific ball game here Aug. 17 as part of the Northwest Feed Manufacturers Assn.'s annual Fun Day.

When the dust had settled after the last out, the Manufacturers had scored a 5-3 win over the Allied tradesmen. This year the game was played under slow-pitch rules and proved quite popular.

With the aid of a little liniment, Leo Levens held the Mixers in check until the top of the seventh when five hits and a walk were put together for three runs, sewing up the victory for Bob Nelson's crew.

Bob brought Norm Wolf in from Waseca to throw the game and he did a terrific job as he spaced the hits he allowed well enough to keep out of trouble.

Gary Shaffer carried off hitting honors with a homerun, two singles and two RBI's. For the Allieds, Ivan Scanlan hit three for three, including a double, while Roy Mann had a double and triple in three trips to the platter.

The defensive play of the day was turned in by Dick Blomfield, who went way back to take one over his shoulder.

Bob Stuart, the man in blue, kept the game moving nicely and called a good game.

BOX SCORE

Allied	AB	R	H	Mfrs.	AB	R	H
Dehning, sf	4	0	0	Henning, c	1	1	1
Hastings, c	4	0	2	Peters, 3b	3	0	1
Sideras, lf	4	0	1	Gordinier, rf	4	0	2
Fjellman, 1b-lf	3	1	2	Kieffer, cf	4	1	2
Scanlan, ss	3	1	3	Kopp'ud, c-3b	2	0	1
Olson, 2b	3	0	1	D. Nelson, lf	3	1	0
Mann, 3b	3	1	2	Reckin, 2b	4	0	2
Jelstrom, rf	1	0	0	Shaffer, 1b	4	2	3
J. Stuart, 1b	2	0	0	B. Nelson, ss	4	0	0
Levens, p	3	0	0	N. Wolf, p	3	0	2
Blomfield, cf	3	0	2	Bowen, sf	2	0	0
	33	3	13		34	5	14

Manufacturers .....0 1 0—0 0 1—3——5
Allied ..... 0 1 0—0 1 1—0——3

DP—D. Nelson, Kopperud; 2b—Wolf, Mann, Scanlan; 3b—Mann; HR—Shaffer; RBI—Keiffer, Reckin, Bowen, Shaffer (2), Olson and Mann. Umpire—R. Stuart; scorer—C. Kennedy.

APHF Public Relations Head to Study Co-ops

KANSAS CITY, MO.—A five-month leave of absence has been granted to Richard T. O'Connell, in charge of public relations, American Poultry & Hatchery Federation, here.

He is taking an assignment from the National Council of Farmer Cooperatives to study the needs of its member cooperatives in serving poultry producers. Mr. O'Connell will work out of the national headquarters of the National Council of Farmer Cooperatives, Washington, D.C.

Raymond MULTIWALL BAGS

RUGGED to serve Farm Needs

Quality controlled to your specifications for trouble-free production in your plant.

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No other Alfalfa is as rich as that which grows in the lush

VALLEY OF THE PLATTE!

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MERRY MIXER DE-HY GREENULES

The name best known in the industry for quality, uniformity and service

We can't take credit for growing the finest alfalfa in the world. Nature, herself, deserves that medallion. Just one birdseye view of the lush Valley of the Platte in Nebraska—and you'll agree.

What we do take credit for is trapping the Vitamin A and trace minerals in this top-quality alfalfa via quick dehydration, preserving them under inert gas storage and making them available to feed manufacturers in the convenient form of Merry Mixer dehydrated alfalfa greenules.

Since the beneficial climate conditions that prevail in the Valley of the Platte do not represent an overhead cost, it naturally follows that you get the best alfalfa product possible in Merry Mixer greenules—at no extra cost.

Merry Mixer greenules are dust-free, easier to mix and have the finest dispersion qualities. Your order in any quantity can be shipped at a moment's notice to guarantee arrival of supplies when you need them.

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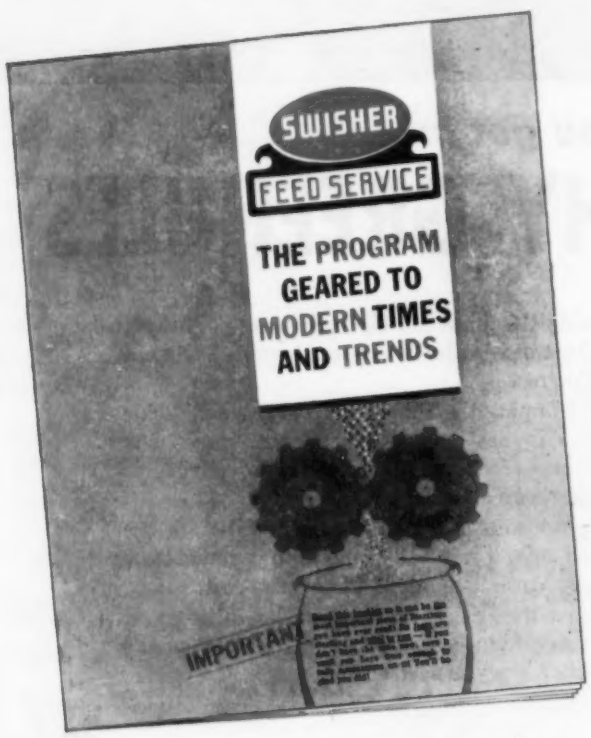
The SWISHER Feed Service Plan is engineered to reduce commercial feeder feed costs to the *absolute minimum.* How? By the SWISHER built-in money saving features that are passed on to you so as to increase YOUR *total net profit.* You make *more* money 3 *important* ways: (1) You sell more feed because you are more competitive; (2) You make a higher profit margin on the feed you sell; (3) You sell a complete first line of highest quality, scientifically developed and proven feeds.



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ELECTED PRESIDENT—Recently elected president of the New England By-Products Corp., Boston, is David A. Trayhan (left), shown being congratulated by Frank C. Bowes, chairman of the board. Also shown (left to right) are: Thomas Tobin, treasurer; Norman Reimers, traffic manager, and Raymond N. Allen, director of technical sales and research. Mr. Trayhan has been in charge of New England By-Products sales for many years. Branded products developed by the firm include Richpelt Frozen Fish for feeding mink, New Englander Vitalizer, a feed additive for cattle and sheep, and Gorton Blends for broilers, layers, hogs and turkeys.

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The Kelly Duplex "Mix 'n Grind" combines weighing, grinding, mixing and sacking in one compact, space-saving machine that speeds up your formula feed operation . . . reduces labor and power costs . . . and gives you a product guaranteed to stand up under the most exacting inspection.

One man can easily process a complete batch in less than 20 minutes. For example, suppose your formula calls for 1200 pounds of ground corn and 800 pounds of supplement. The 1200 pounds of corn can be automatically ground and delivered into the mixing chamber in about the same amount of time it takes a man to open eight 100 pound bags of supplement and dump them into the mixer hopper. When the mixing is completed, the same man can handle the sacking. Time and labor are cut to a minimum.

But that's only part of the profit story. Superior grinding and mixing efficiency is guaranteed. Operation is smooth and noiseless. Power costs are reduced because two low horsepower motors do the entire job.

Ruggedly constructed of heavy arc welded steel throughout . . . the "Mix 'n Grind" is available in one, one and a half, and two ton models to meet your needs. A vertical screw elevator with automatic electric feed cutoff is available as extra equipment.

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☐ Instant Change Hammermill
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☐ Pit Auger
☐ Electric Truck Hoist
☐ Chain Drag
☐ Corn Sheller with Blowers
☐ Combined Sheller-Cleaner
☐ Gyrating Cleaner
☐ Regular Corn Sheller
☐ Pitless Corn Sheller
☐ Corn Scalper
☐ Corn Cutter and Grader
☐ Corn Crusher-Regulator
☐ Cob Crusher
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a proud achievement of the Squibb Research Program...

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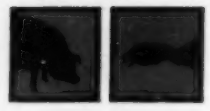

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Now available for use in turkey and swine rations, Mycostatin-20 is a new Squibb development of challenging potential and unusual interest to investigators, nutritionists, and all men with a vital concern in the formulation of more efficient, well-balanced feeds.

A letter addressed to E. R. Squibb & Sons, *Chemicals Sales Department*, will bring you your copy of the Mycostatin-20 brochure without delay.

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SWINE RATIONS

(Continued from page 38)

TABLE 9. Vitamin and Mineral Fortification of a Typical Corn-Soybean Oil Meal Mixture

Nutrient	Content of corn-soybean oil meal mixture*	Suggested level to add to¶ Grower ration	Grower (mixing) supplement
Fat-soluble vitamins			
Vitamin A, I.U./lb.	..	550**	2420
or carotene, mg./lb.	1.5†		
Vitamin D, I.U./lb.	..	150	660
Water-soluble vitamins			
Riboflavin, mg./lb.	0.7	0.5	2.2
Pantothenic acid, mg./lb.	4.0	2.5	11.0
Nicotinic acid, mg./lb.	2.0‡	7.5	33.0
Choline, mg./lb.	430.0	50.0	220.0
Vitamin B_{12}, mcg./lb.	..	8.0	35.2
Minerals			
Calcium, %	0.07	0.68	3.0
Phosphorus, %	0.34	0.16	0.7
Trace-mineralized salt, %	..	0.50	2.2

*A mixture of 80% yellow corn and 20% soybean oil meal.

†Since the vitamin A activity of yellow corn has been observed to drop sharply after storage, only 60% of the activity of corn is considered available for the pig.

‡The nicotinic acid content of yellow corn is considered totally unavailable to swine.

¶Vitamin additions provide levels 20% greater than the levels suggested in Table 8.

**Suggested supplementary vitamin A levels for creep or starter ration, finisher ration, breeder ration and breeder supplement are 1,500, 750, 1,500 and 6,600 I.U. per pound, respectively.

lose as much as 60% of its activity during the first seven months of storage. Therefore, it has been suggested that a supplementary source of vitamin A be added to corn-soybean oil meal rations in order to insure an adequate supply.

Of the supplementary levels of water-soluble vitamins needed, nicotinic acid is deserving of particular attention. According to recent studies, the majority of the nicotinic acid of yellow corn exists in a bound form which is largely unavailable to swine. Hence, yellow corn is not credited with any nicotinic acid although some feed tables indicate that corn may contain as much as 10 mg. of nicotinic acid per pound. The evidence suggests that other cereals also contain unavailable nicotinic acid for the pig.

The nicotinic acid need of swine is also influenced by the level of tryptophan. Tryptophan may be used to satisfy the need for nicotinic acid. Since corn-soybean oil meal rations are usually high in their tryptophan content, they are not benefited by additional nicotinic acid. However, the total and supplementary requirements indicated in Tables 8 and 9, respectively, are made on the premise that the diet contains the minimum tryptophan level suggested in Table 5. This may be the case when other supplementary sources of amino acids replace a part or all of the soybean oil meal.

The calculations show that a vitamin supplement supplying 1 gm. riboflavin, 5 gm. pantothenic acid, 15 gm. nicotinic acid, 100 gm. choline and 16 mg. vitamin B_{12} per ton of feed will adequately fortify the water-soluble vitamin content of a grower or breeder ration. Finisher rations will be adequately fortified with 50% of the above supplementary levels, whereas a double level is required in creep or starter rations. When added according to this schedule, a vitamin supplement which provides 1,500 I.U. of vitamin A and 150 I.U. of vitamin D per pound of grower ration will be adequate for all classes of swine rations.

Mineral Fortification—In respect to mineral additions, swine rations vary primarily in their need for calcium and phosphorus, otherwise the mineral feeding levels are rather uniform for all types of rations. Corn and soybean oil meal mixtures are adequately fortified with calcium and phosphorus for grower and breeder rations by an

TABLE 10. Trace Mineral Needs in Complete Rations and Salt Mixtures

Mineral	Addition to complete ration mg./lb.	Composition of salt mixture* %
Copper	4.8	0.21
Iron	4.0	0.17
Iodine	0.16	0.007
Manganese	17.0	0.75
Zinc	11.4	0.50

*Designed for adding at 0.5% of complete rations.

TABLE 11. Antibiotic and Arsenical Supplementation of Swine Rations

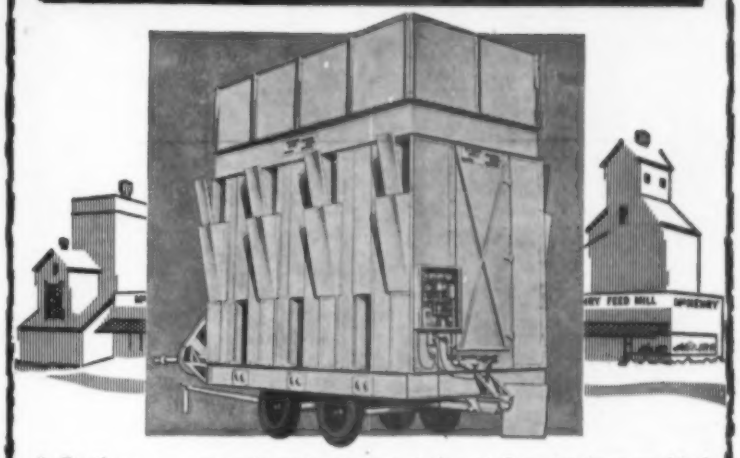
Ration*	Supplementary level, gm./ton—Antibiotic	Arsanilic acid	3-nitro-4-hydroxy phenylarsonic acid
Creep or starter	40	90	22
Grower	10-20	90	22
Finisher	0-10	90	22
Breeder	0	0	0
Supplement			
Pig	50-100	450	100
Hog	0-50	450	100
Sow	0	0	0
Therapeutic†	50-200	90	22

*Feeds containing an arsenical alone or an antibiotic at 50 gm. or more per ton are designated as medicated feeds.

†For treatment of infectious enteritis, etc.

M-C GRAIN DRYER CONTINUOUS

COMPARE! There's Nothing like it ANYWHERE!



• Continuous . . . goes in wet; comes out dry. • Completely assembled Grain Dryer. • Portable, requires very little installation expense. • Strong! Holds 20 tons of grain. • Capacity up to 268 bu. per hour. • 15 H.P. electric motor. • LP or natural gas. • Quiet for "in town" use. • Minneapolis-Honeywell temp. and safety controls. • Can't plug, grind or crack grain. • Dries all grains, beans and rice. • Can be put in operation for less than ½ the cost of other continuous dryers of same capacity. • Serviced by National Distributing Organization.

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Improve your silage palatability with wholesome, nutritious DEX-MO-LASS.

IN 50-lb. BAGS
• Easy to handle
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900 BILLBOARDS

Over 900 billboards in top egg-producing areas are helping sell your EGGtober Feeds with Terramycin®.

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FEED MERCHANTS Reap Greater Profits with the Fastest Growing Poultry Grit in America.

Ri-Stone promotes healthier birds, faster growth, lower feed costs. Your inquiries invited.

Get Ri-Stone in the economical 80 lb. bags. A size for all ages. Fine, Medium, Coarse and Turkey sizes.

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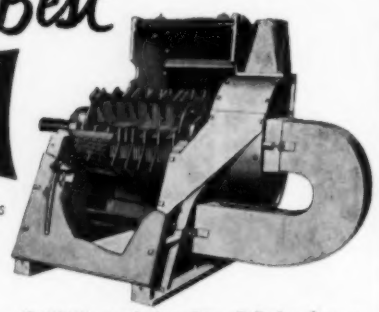

1. No pre-crushing of ear corn is required.
2. W-W has many quality features as well as a grey cast iron frame that resists corrosion and won't rust; gives exceptionally long life. Hammers are hard-surfaced with Tungsten Carbide.
3. W-W's exclusive Star Cylinder has a unique design that requires much less power than competitive makes.
4. W-W has been producing quality mills for over 50 years. Original mills are still in use.
5. Prices are lower than most makes with inferior quality. Here are representative prices:*

Model	HP	Feed Opening	Price *
F-25M Gooseneck	40	18"	$ 697.04
F-27M Gooseneck	75	24"	$1665.86
F-29M Gooseneck	100-150	36"	$2183.98

Other Models from $154.00 to $408.16. * All prices f.o.b. factory. You get the best hammermill available. Write for catalog and ask about convenient time-payment plan.

W-W GRINDER CORP.

Dept. 311
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WICHITA 4, KANSAS

addition of 2% of equal parts ground limestone and dicalcium phosphate or steamed bone meal.

Mineral mixtures designed to supplement corn-soybean oil meal rations should have a calcium to phosphorus ratio of 4.5 or 5 to 1. For example, when added at 2.5% of the ration a mixture containing 27% calcium and 6% phosphorus will adequately supplement a corn-soybean oil meal ration for growing pigs.

The level of calcium and especially phosphorus supplementation should be reduced as feeds of animal origin are introduced into the diet. For example, 5% of meat and bone scrap or of menhaden fishmeal in grower, finisher, or breeder rations completely eliminates the need of phosphorus supplementation. In addition, the calcium need in the presence of 5% meat and bone scrap or of 5% menhaden fishmeal may be satisfied by adding 0.5 and 1.0% of ground limestone, respectively.

Suggested trace mineral additions to complete swine rations or to a trace-mineralized salt mixture are presented in Table 10.

ANTIBIOTICS AND ARSENICALS—Antibiotics and arsenicals have become known as standard ingredients of swine rations. So far, the exact mechanism of the beneficial influence of these feed additives is not clear, although at least a part of the effect is mediated through the health of the pig. Chlortetracycline (Aureomycin), oxytetracycline (Terramycin), and procaine penicillin were first considered to be the antibiotics of greatest value for adding to swine rations. However, at present it appears that certain mixtures of these antibiotics with each other or with streptomycin or bacitracin are more effective sources of antibiotic activity for swine.

Arsenicals, as either arsanilic acid or 3-nitro-4-hydroxyphenylarsonic acid, may be used alone or with antibiotics in medicated feeds. Therapeutic feeds containing 50-200 gm. antibiotic or more are used with arsenicals for prevention or control of infectious enteritis in swine. When arsenicals are fed their use should be discontinued at least five days prior to slaughtering for human consumption, to eliminate the drug from edible tissues.

Recommended supplementary levels of antibiotics and arsenicals are offered in Table 11.

Peavey Names Director Of Economic Research

MINNEAPOLIS — Establishment of an economic research department and the appointment of Dr. Richard B. Zoller as its director, were announced recently by F. Peavey Heffelfinger, president of F. H. Peavey & Co. Peavey Feed Mills is one of the company's divisions.

Dr. R. B. Zoller

"The primary objective of this department," said Mr. Heffelfinger, "will be to analyze and report on alternative courses of action open to management for the allocation of the company's resources. The particular areas of responsibilities will be in the fields of production and marketing economics."

Dr. Zoller, who received his Ph.D. degree in agricultural economics from the University of Minnesota in 1958, has been on the firm's executive staff for the past year.

GRAIN STORAGE ADDITION

MONTPELIER, IDAHO — Under construction at Montpelier is a two-bin grain storage addition to the local elevator. Capacity of each bin is 5,500 bu.

At the end of the dance he asked if he might see her home, and she said her Jaguar was parked right next door. They rode to her apartment and she invited him in for coffee, eggs, toast and bacon, remarking that she just loved to cook.

She put the key in the lock and he, already counting how much it would cost him to get married, pushed open the door. And there, lying in the middle of the floor was a dead horse. He stopped, aghast.

"'Well, all right,' she said, 'so I'm not neat.'"

◆ ◆ ◆

An irate lawyer, trying to establish a point in cross-examination, demanded of the defendant: "Madam, while you were taking your dog for a walk, did you stop anywhere?"

"Sir," the witness said quietly, "have you ever taken a dog for a walk?"

◆ ◆ ◆

The professor rapped on his desk and shouted: "Gentlemen—order!"

The entire class yelled: "Beer!"

◆ ◆ ◆

"Sir," said the timid employee, "my wife said I should ask you for a raise."

"Good," said the boss. "I'll ask my wife if I can give you one."

◆ ◆ ◆

Mother—"Johnny, if you eat more cake, you'll burst."

Johnny—"Well, pass the cake and get outa the way."

◆ ◆ ◆

"Have I told you about my grandchildren?"

"No. And I want you to know I appreciate it."

◆ ◆ ◆

A man and his three-year old son got on an elevator and after they had gone up a few floors began to be pushed to the back of the car. An old lady gave the little boy a concerned look and then whispered to his father:

"Aren't you afraid your son will be squashed?"

"Not a chance," the man replied. "He bites!"

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she's had her CAFNECTAR this morning

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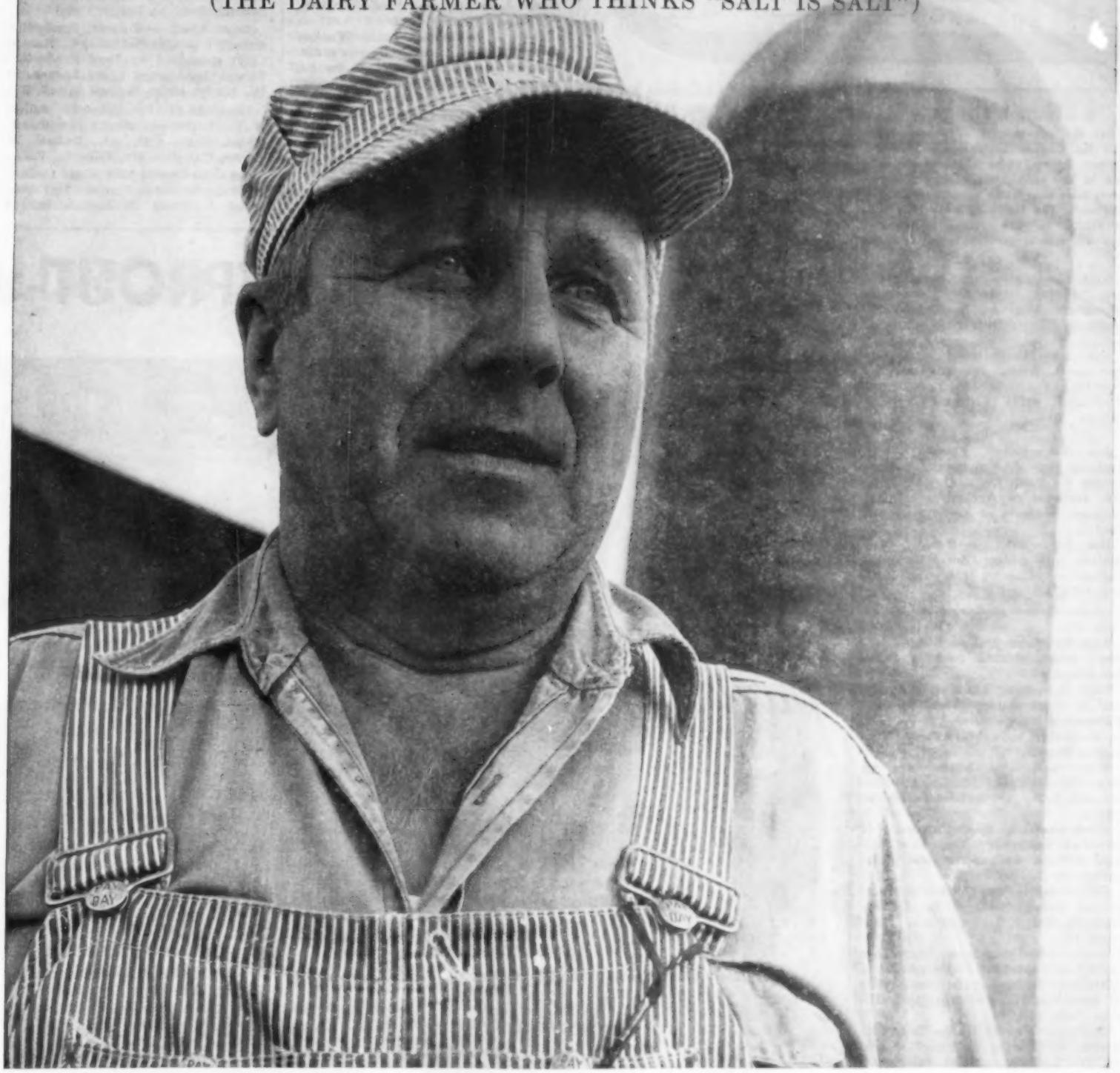
GIVE HIM A TIP HE'LL THANK YOU FOR

(THE DAIRY FARMER WHO THINKS "SALT IS SALT")



REMIND HIM TO ORDER MORTON T-M SALT. Even though salt is a small part of his feed bill, Morton Trace-Mineralized Salt helps increase feed efficiency so all his feeds do a better job. He'll appreciate your reminding him—and he'll be back regularly to do more business with you. What's more, Morton T-M is a quality product you can recommend with confidence to any dairyman. It is a profitable item backed by strong promotion that helps make it sell easily.

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Convention Calendar

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

Sept. 21—Illinois Egg Council; Illinois Building, State Fair Grounds, Springfield, Ill.; sec., Scott Hinners, Southern Illinois University, Carbondale.

Nov. 1-4—Mississippi Poultry Improvement Assn., Biloxi; Dean & Director, Division of Agriculture, Mississippi State University, State College, Miss.

1960

Jan. 4-8—Retail Feed Dealers Training School; University of Minnesota, St. Paul; Dr. J. O. Christianson, Director of Agricultural Short Courses, Institute of Agriculture, St. Paul 1.

Dec. 4-5—Arkansas Turkey Convention and Show; Berryville, Arkansas; sec., Charles D. Hawks, P. O. Box 1446, Little Rock.

Aug. 28—South Dakota Swine Field Day; South Dakota State College, Brookings.

Sept. 3-4—Symposium on Magnesium in Agriculture; West Virginia University, Morgantown, W. Va.; Dr. G. C. Anderson, head, Animal Husbandry Dept.

Sept. 4—Illinois Cattle Feeders Day, University of Illinois, Urbana; chm., A. L. Neumann, Beef Cattle Division.

Sept. 4—Swine Day; University of Missouri, Columbia; chm., Prof. Leland Tribble, Animal Husbandry Department.

Sept. 9-10—Pet Food Institute; Drake Hotel, Chicago; sec., Clyde Kassens, 332 S. Michigan Ave., Chicago, Ill.

Sept. 9-10—Maryland Conference for Feed Service Men; University of Maryland, College Park; chm., Wade H. Rice, University of Maryland, College Park, Md.

Sept. 10—Florida Swine Day; University of Florida, Gainesville; sec., H. D. Wallace, Animal Husbandry and Nutrition Department.

Sept. 11—Minnesota Swine Feeders Day; Peters Hall Auditorium, University of Minnesota, St. Paul, Minn.; Prof. R. J. Meade, Animal Husbandry Department.

Sept. 13-14—Grain and Feed Dealers National Assn. (work meeting for directors, committees and members), Minneapolis; exec. vice pres., Alvin E. Oliver, 400 Folger Bldg., Washington 5, D.C.

Sept. 14-15—Minnesota Animal Nutrition and Health Short Course; University of Minnesota, St. Paul 1; chm., Dr. J. O. Christianson, Department of Agricultural Short Courses.

Sept. 15-16—Mutual Millers & Feed Dealers Assn.; Jamestown, N. Y.; sec., Margaret Bentley, 41 Chautauqua Ave., Jamestown, N.Y.

Sept. 15-17—Dixie Poultry Exposition, Asheville, N.C.; sec., N. B. Nicholson, Monroe, N.C.

Sept. 17—Illinois State Turkey Growers Assn., farm of Clarence Ziemer, Elmwood, Ill.; sec., S. B. Swann, Kauffman Turkey Farms, Waterman, Ill.

Sept. 17-18—Arkansas Formula Feed Conference; University of Arkansas, Fayetteville; chm., Dr. E. L. Stephenson, Department of Animal Industry.

Sept. 18—College-Feed Industry Conference; Iowa State College, Ames; chm., Prof. Emmit Haynes, Animal Husbandry Dept.

Sept. 23—Minnesota Beef-Grassland Field Day; Rosemount Experiment Station, Rosemount, Minn.; chm., Dr. J. O. Christianson, Department of Agricultural Short Courses, University of Minnesota, St. Paul 1.

Sept. 23—Vermont Feed Dealers and Manufacturers Assn.; University of Vermont, Burlington, Vt.; sec., D. C. Henderson, H111s Agricultural Science Building, Burlington, Vt.

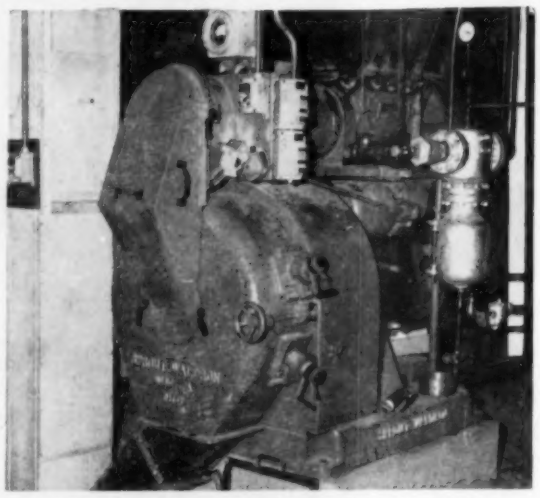
Sept. 23-25—Feed Production School; Continental Hotel, Kansas City; sponsored by Feed Production School, Inc.; pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Sept. 24-26—Pennsylvania Millers & Feed Dealers Assn.; Yorktowne Hotel, York, Pa.; sec., Donald W. Parke, P.O. Box 329, Ephrata, Pa.

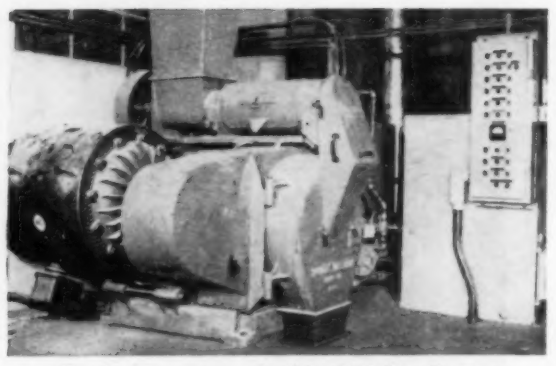
Sept. 26—Small Mill Short Course; Continental Hotel, Kansas City; sponsored by Feed Production School,

HIGH LEVEL ...or low level
Whitmoyer
KEMITRACIN
the purified ANTIBIOTIC complex—that does your feed antibiotic job better!
Send for complete scientific data.
WHITMOYER LABORATORIES, Inc.
MYERSTOWN, PENNA.

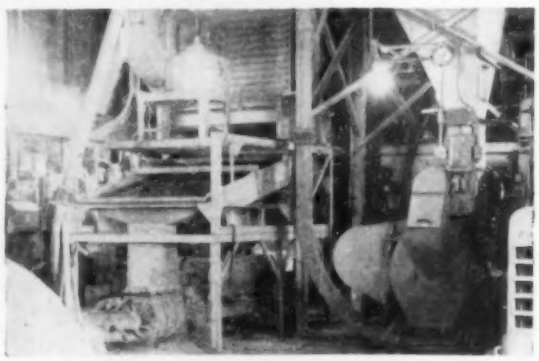
The SPROUT-W



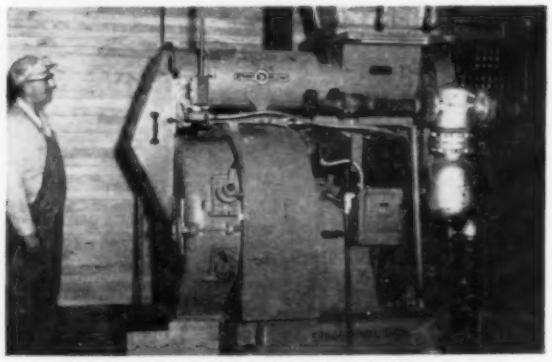
100 hp S-W Pellet Ace helps Nixon & Company, Des Moines, Iowa produce feeds at .5 to .7 manhours per ton.



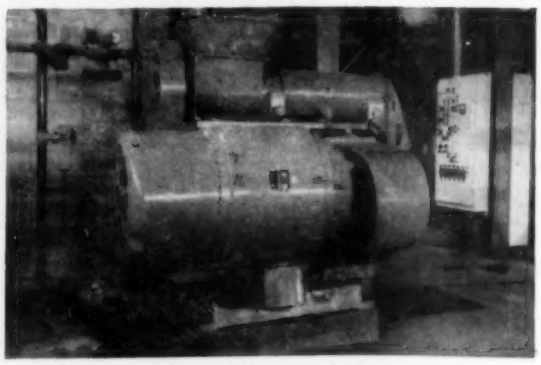
Raring to go . . . is this 100 hp Super Ace recently installed at Rockingham Cooperative Farm Bureau in Harrisonburg, Virginia.



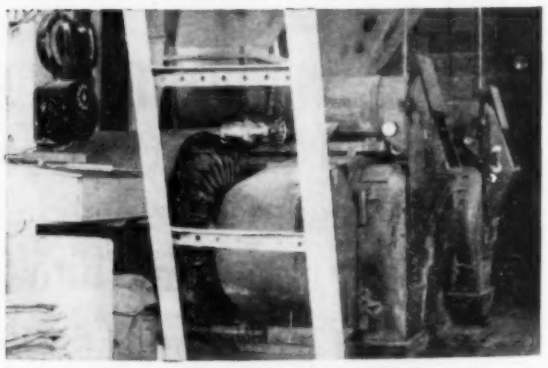
Pelleting on a Sprout-Waldron Ace, plus inert gas storage, helps Schoeneck Farms, Nazareth, Pa., guarantee year-round high quality alfalfa.



Turkey feed pellets galore are made on this Sprout-Waldron Pellet Ace in service at Wampler Feed and Seed, Harrisonburg, Virginia.



This 100 hp Pellet Ace plays an important role in the new Auto-Syntronic McMillan Feed Mill, Des Moines, Iowa.



Side by side, these 100 hp Sprout-Waldron Aces help Murray Feed Service, Frankford, Delaware, serve their customers.

JS/1125

SW SINCE 1866

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Sept. 29-30 — Pacific Northwest Garden Supply Trade Show; Masonic Temple, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Oct. 1-2—National Feed Ingredients Assn.; Pick-Congress Hotel, Chicago, Ill.; sec., Peter W. Janss, 212 Equitable Bldg., Des Moines, Iowa.

Oct. 6-8 — Northeastern Poultry Producers Council Exposition and Convention; Farm Show Building, Harrisburg, Pa.; chm., Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

Oct. 7-9—Texas Nutrition Conference; Texas A&M College, College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 8-9—Alabama Animal Nutrition and Management Conference; Duncan Hall, Alabama Polytechnic Institute, Auburn; sponsored by Alabama Feed Assn., sec., Merlin Bryant, Brundidge Milling Co., Inc., Brundidge, Alabama.

Oct. 11-14—Kentucky Poultry Federation and Kentucky Poultry Improvement Assn.; Cumberland Falls State Park, Corbin; sec., John W. Tuttle, 730 Rose St., Lexington, Ky.

Oct. 14—Animal Nutrition Research Council; Shoreham Hotel, Washington, D.C.; sec., Irwin Olcott, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32, Ill.

Oct. 14-15—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Agricultural Experiment Station Bldg., University of Kentucky, Lexington, Ky.

Oct. 15-16—Michigan Feed & Grain Dealers Assn.; Kellogg Center, Michigan State University, East Lansing, Mich.; sec., Nevels Pearson, P.O. Box 472, East Lansing, Mich.

Oct. 19-20—Beef Research Conference (attendance by invitation); Purdue University, Lafayette, Ind.; sponsored by Agricultural Research Institute and National Academy of Sciences-National Research Council; Dr. C. B. Cox, Agricultural Economics Department, Purdue University.

Oct. 19-20—California Animal Industry Conference; Fresno Memorial Auditorium, Fresno, Cal.; sponsored by California Hay, Grain & Feed Dealers Assn. and University of California; chm., Berton Maxwell, Poultry Producers of Central California, Petaluma.

Oct. 20-21—Virginia State Poultry Federation; Hotel John Marshall, Richmond, Va.; sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Oct. 22-23 — Annual Stockholders Meeting, Cooperative G.L.F. Exchange, Inc., Onondago County War Memorial Building, Syracuse, N.Y.

Oct. 22-23—Iowa Seed Dealers Assn.; Savery Hotel, Des Moines; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Oct. 23—Arkansas Poultry Study Day; University of Arkansas, Fayetteville; Prof. Robert M. Smith, Department of Animal Industry and Veterinary Science.

Oct. 29—Nebraska Feed & Nutrition Conference; University of Nebraska, Lincoln; chm., Dr. John Adams, Poultry Husbandry Department.

Oct. 29-30—West Virginia Feed Dealers Assn.; Blackwater Falls Lodge, Davis; sec., J. S. Larrick, Beckley Ice & Feed, Beckley, W. Va.

Oct. 30—Rooters Day; University of Nebraska, Lincoln; Dr. E. R. Peo, Animal Husbandry Department.

Oct. 30—Illinois Sheep Producers Day; University of Illinois, Urbana; chm., Dr. U. S. Garrigus, Department of Animal Science.

Nov. 4-5—Illinois Feed Assn. and Illinois Poultry Improvement Assn., joint convention; Armory, Springfield, Ill.; IFA, Leland Hotel; sec., Dean M. Clark, Board of Trade Bldg., Chicago; IPIA, St. Nicholas Hotel; sec., Aubrey Hariess, Box 91, Shelbyville, Ill.

Nov. 4-7 — National Renderers Assn., Hollywood Beach Hotel, Hollywood Beach, Fla.; sec., Miss Jamie Fox, 30 N. La Salle St., Chicago 2, Illinois.

Nov. 5-6—Florida Nutrition Conference; University of Florida, Gainesville; sponsored by Florida Feed Dealers Assn. and Florida Agricultural Experiment Station; chm., Dr. J. P. Feaster, Department of Animal Husbandry and Nutrition.

Nov. 6-7—Oklahoma Formula Feed Conference; Oklahoma State University, Stillwater; chm., Dr. Rollin H. Thayer, Poultry Science Department.

Jackson Blvd., Chicago 4, Ill.

Nov. 12-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. F. W. Hill, Poultry Husbandry Dept., Cornell University, Ithaca, N.Y.

Nov. 16—Tennessee Feed Manufacturers Assn., Claridge Hotel, Memphis, Tenn.; sec., Charles H. Warfield, American Trust Bldg., Nashville, Tenn.

Nov. 16-17—Washington Animal Industry Conference; Yakima Junior College, Yakima, Wash.; John G. Wilson, Washington State Feed Assn., Inc., 814 Second Avenue Bldg., Seattle 4.

Nov. 18—School for Poultry Servicemen; University of New Jersey, Agricultural Experiment Station, New

CALENDAR FOR 1959-60

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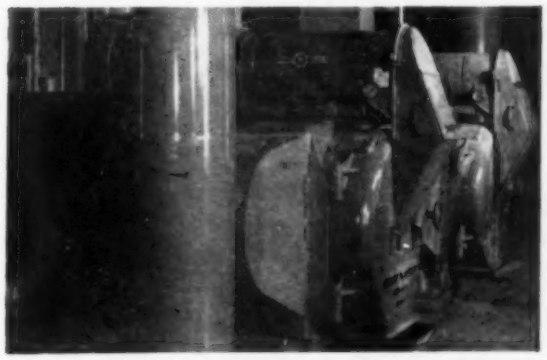
ALDRON PELLET ACE® in action

The Ful-O-Pep Quaker Oats Mill in Shiremanstown, Pennsylvania, gets quality and production from this Sprout-Waldron Pellet Ace.

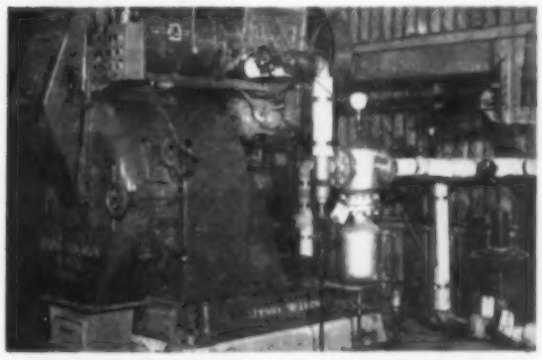
There is hardly a highway or byway in the country that doesn't lead to a Sprout-Waldron pellet mill installation.

As pioneer in the design of the vertical ring die machine, Sprout-Waldron pellet mill leadership has continued unbroken through the years. Whether your needs be for the Junior Ace with its 15 to 40 hp motor, the Ace with its 75 to 100 hp motor, or the Super Ace with its 100 to 125 hp motor and extra wide die, there is a Sprout-Waldron pellet mill best suited to your own production needs.

Custom and commercial mills all over the world have come to rely on Sprout-Waldron units for highest production at lowest cost. Bulletins 165-A (Junior Ace), 101-A (Pellet Ace), and 201 (Super Ace), are available on request. Send for your copies today!

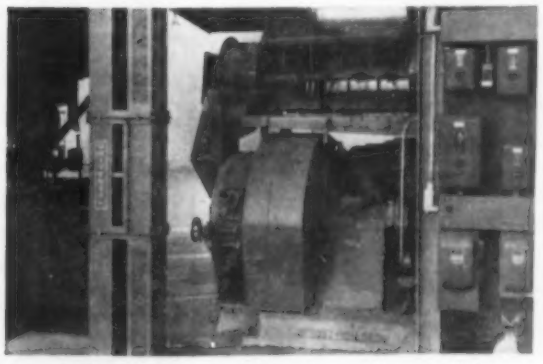


Berlin Milling Company, Berlin, Md. meets increased demands for quality feeds with the help of these twin 100 hp Sprout-Waldron Pellet mills.



Automation comes to pelleting as the Sprout-Waldron Super Ace teams up with a completely automatic batching control system.

This Sprout-Waldron Pellet Ace plays a big part in the manufacture of cattle and hog feed at Desert Gold Feed Company, Liberty, Missouri.



Pelleting everything but silage, this 125 hp Sprout-Waldron mill is the backbone of the Smith & Kelly Feedlot installation in Phoenix, Arizona.

Exclusive Canadian Distributors: Strong-Scott, Limited, Winnipeg
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New Automatic Beefaid Pellet Implanter

SPEEDS HANDLING

INSURES TROUBLE-FREE ACCURACY

The operation of Vinelab's new automatic BEEFAID PELLET IMPLANTER is so simple that every feeder and cattleman can use it efficiently without training or experience. Animals can be treated as quickly as they can be made available. The magazine accommodates up to 175 Beefaid Pellets at one loading.

Since there is no manual handling of tiny pellets, workers need not remove their gloves or go through the process of frequent reloading. Best of all—the Vinelab Automatic Implanter works every time—without misses, with no broken pellets. Takes both 24 mg. and 36 mg. Beefaid Pellets without changing needles or magazine. Unlike other products, *only ONE Beefaid Pellet* is implanted in each animal. This single treatment lasts for the full 120-day feeding period prior to marketing.

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Get in touch with your nearest dealer, Vineland state distributor, or write direct for our folder describing the new Vinelab Beefaid Pellet Implanter and the Vinelab Beefaid One Pellet Program.

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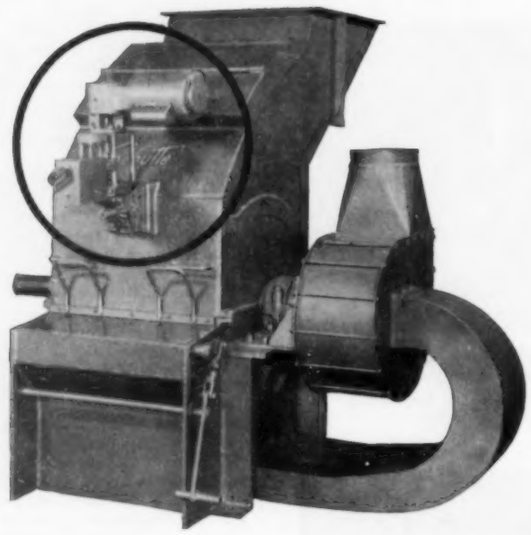
NEW ADVANCED FEED CONTROL

gives you more uniform grinds at less cost



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Now you can regulate feed flow electrically from anywhere in your plant, by simply pushing a button. This new unit assures you of constant feed control, resulting in a cooler, better, granulated grind, free from stringiness. Materials are ground in suspension against a Feed Control Plate. With the Plate wide open, you can grind hay and other roughages quickly without slugging. Take your pick of remote control or manual operation at the mill or floor above.

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HAMMER MILLS

Brunswick; chm., R. L. Squibb, Department of Poultry Science.

Nov. 19-20—National Swine Industry Conference; Iowa State University, Ames; chm., Keith Myers, National Swine Growers Council, Grundy Center, Iowa.

Nov. 22-24—Western Grain & Feed Assn. of Iowa; Fort Des Moines Hotel, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Nov. 27-28—American Society of Animal Production; Sherman Hotel, Chicago, Ill.; sec., Dr. H. H. Stonaker, Colorado State University, Ft. Collins, Colo.

Nov. 30-Dec. 1—Midwest Veterinary Nutrition Conference; President Hotel, Kansas City; sec., Lloyd Larson, Midwest Feed Manufacturers Assn., 20 W. 9th Street Bldg., Kansas City 5, Mo.

Dec. 2—Ontario Retail Feed Dealers Association; King Edward Sheraton Hotel, Toronto; sec., Murray McPhail, 69 Yonge Street, Toronto.

Dec. 3-4—North Carolina Animal Nutrition Conference; North Carolina State College, School of Agriculture, Raleigh; chm., E. R. Barrick, Head, Animal Husbandry Section.

Dec. 8-9 — Poultrymen's Service Clinic; Cornell University, Ithaca, N.Y.

1960

Jan. 4-5—Kansas Formula Feed Conference; Kansas State University, Manhattan, Kansas.

Jan. 5-7—National Turkey Federation; Hotel Leamington, Minneapolis; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 17-19—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred K. Sale, 600 Board of Trade Building, Indianapolis, 4, Ind.

Jan. 25-27 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec. Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Feb. 4-5—Oregon Animal Industry Conference; Oregon State College, Corvallis, Ore.; chm., Dr. J. E. Parker, Poultry Husbandry Department.

Feb. 8-9—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 8-9—Midwest Feed Manufacturers Assn.; Muehlebach Hotel, Kansas City; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg. Kansas City 5, Mo.

Feb. 10-11—Pacific Northwest Feed Mill Production School; Chinook Hotel, Yakima, Wash.; sponsored by Washington State Feed Assn., mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 11—Boston Grain and Flour Exchange Annual Banquet; Sheraton-Plaza Hotel, Boston; chm., Paul Sutliff, 177 Milk St., Boston, Mass.

Feb. 12—Washington State Feed Assn.; Chinook Hotel, Yakima, Wash.; annual convention; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 12-14—Fact Finding Conference, sponsored by the Institute of American Poultry Industries; Municipal Auditorium, Kansas City, Mo.; pres., Harold M. Williams, 59 East Madison, Chicago, Ill.

Feb. 21-23—Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo; sec., G. E. O'Brien, 694 N. Ohio Street, Greenville, Ohio.

Feb. 22-23—Virginia Feed & Nutrition Conference; Hotel Roanoke, Roanoke; J. Paul Williams, sec., Virginia State Feed Assn., 615 E. Franklin St., Richmond, Va., or Prof. Paul M. Reaves, Department of Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 7-8—Grain & Feed Dealers National Assn.; Hotel Muehlebach, Kansas City; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

March 17-18—Oregon Feed & Seed Dealers Assn.; New Sheraton Hotel, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Mar. 17-18—Maryland Nutrition Conference; Shoreham Hotel, Washington, D. C.; chm., Richard D. Creek, University of Maryland, Department of Poultry Husbandry, College Park.

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

April 1-2—Texas Grain & Feed Assn., Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth 2, Texas.

April 5-7—Nebraska Grain & Feed Dealers Assn.; Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

April 11-13—Poultry and Egg National Board, LaSalle Hotel, Chicago, Ill.; mgr., Floyd Geil, 8 S. Michigan Ave., Chicago 13, Ill.

April 21-23—California Hay, Grain & Feed Dealers Assn., Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

April 21-23—Kansas Grain & Feed Dealers Association; Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 22 — Nebraska Livestock Feeders Day; University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

May 9-11—American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

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Use Feedstuffs WANT ADS for RESULTS

"HEADED OVERSEAS"—Two different Swiss feed companies have purchased mobile mills recently from Barnard & Leas Manufacturing Co., Inc., Cedar Rapids, Iowa. To inform people of this development, the company drapes posters on the new units enroute to ports of embarkation. The one shown in the picture was purchased by Provimi of Cossonay, Switzerland. This company plans to operate the unit in Switzerland and other countries.

Antioxidant Study Reported by USDA

WASHINGTON — Recent interest by commercial processors of forage meal and poultry feed in an antioxidant, shown by U.S. Department of Agriculture research to be an "outstanding vitamin stabilizer for dehydrated alfalfa meal," suggests eventual wide use of the compound, USDA reports.

Processors who annually produce more than half the nation's million-ton supply of dehydrated alfalfa meal have obtained licenses to use EMQ (6-ethoxy—2,2,4-trimethyl—1,2-dihydroquinoline) covered in Public Service Patent No. 2,562,970 and assigned to the Secretary of Agriculture.

The patent is based on studies at the western utilization research and development division (at Albany, Cal.) of USDA's Agricultural Research Service and was granted to Dr. C. Ray Thompson, chemist. Approval of the use of EMQ as an antioxidant additive in forage meals for poultry feed was granted by the U.S. Food and Drug Administration early this year.

ARS research showed that EMQ was outstanding among 400 chemicals tested to stabilize provitamin A (carotene) in dehydrated alfalfa meal, officials said. Other studies by ARS and state experiment station scientists indicated that EMQ also preserves xanthophylls and vitamin E, both important to livestock nutrition.

In the case of carotene, for example, ARS scientists estimate that the addition of EMQ to alfalfa meal lowers oxidation losses of this nutrient from about one third to one tenth of the total carotene content. A ton of alfalfa meal normally contains 300 million units of carotene, of which 100 million units are usually lost by oxidation during conventional handling. Use of EMQ would reduce this loss to about 30 million units a ton.

Developing a practical method for applying EMQ to dehydrated alfalfa meal led to a further improvement in this feed. ARS scientists found that EMQ could be best applied by dissolving the additive in inedible animal fat and spraying it on the feed. This not only provides uniform application of EMQ but the oily treatment also aids in maintaining the green color of fresh forage and overcomes the nuisance of dustiness during processing and handling of alfalfa meal.

RUNNING FOR OFFICE

MEMPHIS, TENN.—E. Lloyd Burgen, 57-year-old grain and feed broker, has announced he is a candidate for the Memphis Board of Education in the August election. Mr. Burgen said he is entering the school board race because he is concerned about the city's educational system.

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in Semi-Solid Form
For Poultry–Hogs
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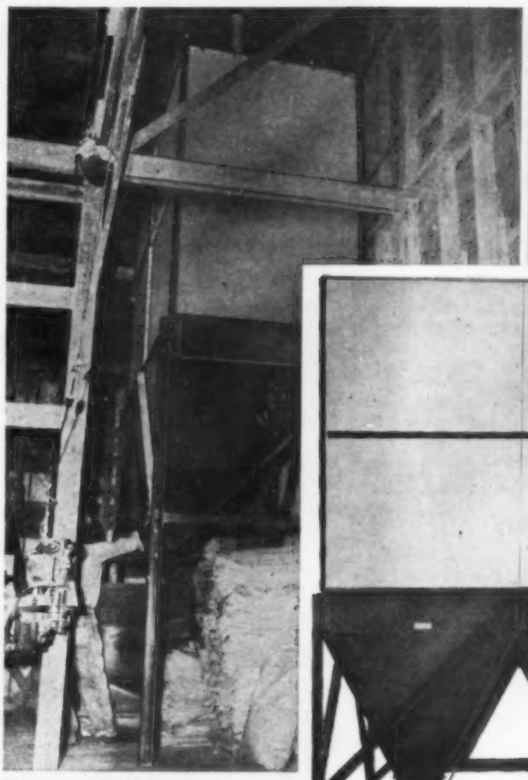
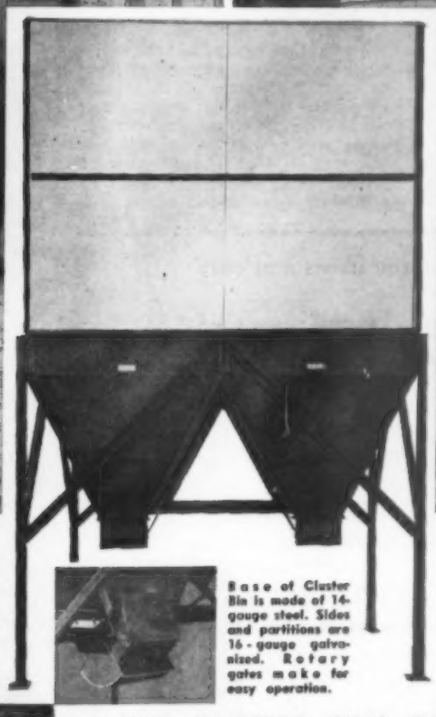
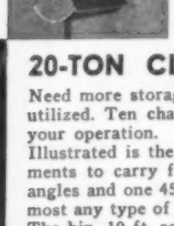
Lemanco GIVES EXTRA STORAGE
with prefabricated square bins

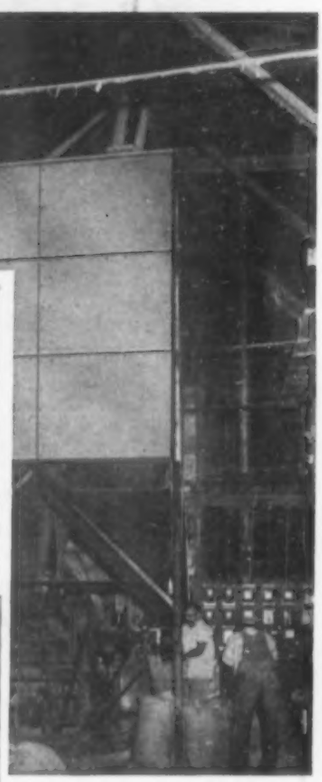


Because of limited space in this mill area a half cluster bin with two hoppers is used to give 10 tons storage of concentrate. Bin was furnished with steel top for air delivery. Many variations of bin and hopper available.





Base of Cluster Bin is made of 14-gauge steel. Sides and partitions are 16-gauge galvanized. Rotary gates make for easy operation.



Cluster bin with 4-foot extension gives storage space of 28 tons utilizing floor area of only 10 feet square. Legs, above, were elevated 18" giving a total clearance under hoppers of 5 feet. Bin used to store crimped oats and cracked corn.

Versatility of this storage bin is demonstrated showing weigh buggy under rotary gate and a bag-out scale set to pivot under all four hoppers. Slide gates for latter operation can be provided.

20-TON CLUSTER BINS FOR FEED MILLS . . .

Need more storage? Look around your mill for those odd spaces not being utilized. Ten chances to one a LEMANCO all-steel bin can be fitted into your operation.

Illustrated is the 20-ton Cluster Bin, open top, having four 5-ton compartments to carry four different ingredients. Each compartment has two 60° angles and one 45° angle. The front is practically vertical, which means that most any type of feed will flow with ease.

The bin, 10 ft. sq., has an overall height of 16½ ft., which can be reduced, if necessary, by ordering shorter legs. Standard clearance underneath the rotary gates is 42 in. This can be increased by blocking up. Sides and partitions can be extended to roof provided listed capacity is not unduly increased. Other Lemanco bin models can be used to good advantage in mill operations.

For further information write or telephone
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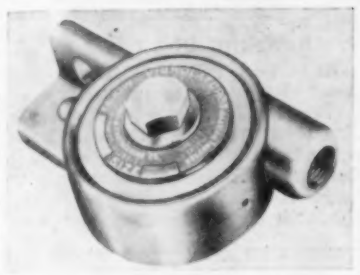
No. 7632—Automatic Batching Control

A new method for automatic batching control has been introduced by Toledo Scale, Division of Toledo Scale Corp. The unit is referred to as "Batchboard" Remocon control, and is said by the company to afford the

latest in proportioning control opportunities through automatic presetting of unlimited numbers of batch formulas. The unit eliminates the necessity for manual adjustment of individual weigh selectors to obtain the desired quantity of each ingredient in the batch. The systems are designed to provide control of the entire batching operations from a central remote location. Each unit is approximately 7 in. by 10 in. by 2 in., and contains contact holes, each hole representing a weight value. Plug wires are inserted into the appropriate holes to set up the desired batch weight of each ingredient for single or multiple scales. An individual "Batchboard" is used for each formula, and once the unit is wired, it can be used indefinitely without rewiring. Each unit is enclosed to prevent accidental change to the wiring. As many as 20 ingredients can be controlled by one "Batchboard." Each unit is numbered, representing one specific formula. To operate, a key operated power switch is turned on and the operator then selects the proper "Batchboard" and inserts it into the receptacle on the control panel. If multiple batches of one formula are to be delivered, the operator selects the number of batches desired on the preset batch counter. Any other standard Toledo proportioning control features can be integrated into a "Batchboard" Remocon system. For more complete details, check No. 7632 on the coupon and mail.

No. 7633—Vibration Inducer

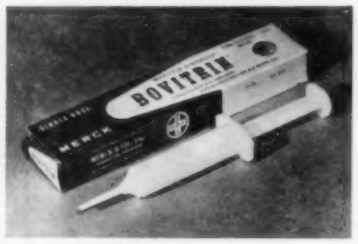
A vibration inducer of light weight has been announced by Martin Engineering Co. Designated the "Lightweight BD-10," the unit weighs 4½ oz. but has the power and strength of its 11 oz. predecessor, the company says. The unit is fitted with a replaceable jet for air economy. Vibration is generated by a rolling ball driven in an



orbit on replaceable raceways of hardened high alloy steel precision ground. Operation is safe in explosive atmospheres. Special lug allows mounting in any position with a single bolt. It can be used to bring powdered, particulate or granular materials out of hoppers and down chutes and will handle bins with 4 cu. ft. storage capacity. Air consumption is 3 cu. ft. per minute (free air at 80 P.S.I.), and will operate on as little as 5 P.S.I. For details, check No. 7633 on the coupon and mail.

No. 7630—Mastitis Ointment

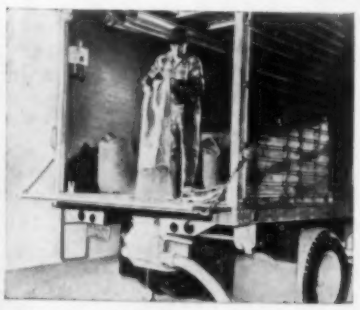
"Bovitrin," a mastitis ointment developed by Merck & Co., Inc., is now available in a single-dose syringe, it was announced. The disposable, plastic syringe is available in a standard



6 cc size. Each syringe contains 5 grams. The ointment contains three antibiotics: Penicillin, dihydrostreptomycin and neomycin, with prednisolone 21-phosphate. For more information about the product, check No. 7630 on the coupon and mail to this publication.

No. 7624—Conversion Truck Unit

A conversion truck unit, capable of converting a conventional flat bed truck or trailer to a bulk material handling unit, has been announced by Ripco Air Systems. The unit, as shown, is mounted under the truck bed at the rear end, just inside the tail gate. The unit doesn't interfere



with conventional truck use as a steel plate covers the feeder opening when not in use. According to company literature, the flush mounted unit enables the operator to deliver, and unload with flexible hoses, granular material either loose or bagged. When empty, the truck can be used for a conventional return load. Hose extensions can be carried in ceiling of truck or on outside brackets. For details, check No. 7624 on the coupon and mail.

No. 7634—Pig Raising Information

Information on the "Porkorium," a building designed for raising pigs from farrow to finish, is available from Chore Boy Manufacturing Co., Inc. According to the company, the building, measuring 32 ft. by 96 ft., contains 24 pens with galvanized steel walls and self-draining concrete floors. Each pen accommodates one sow and her litter. Self feeders in the pens are automatically filled with an auger

from a central supply. Each pen has an automatic watering device and the building has a pressure ventilation system. With multiple farrowing, 48 sows and litters can be handled each year. The company says one man can handle four to six units, to produce up to 2,500 hogs per year. Check No. 7634 and mail for details.

No. 7631—Handle Bag

Designed to lessen the load of carrying bulk packaged products in 25 lb., 40 lb., and 50 lb. multiwall bags, the Hudson Pulp & Paper Corp. is producing bags with side carrying handles. The construction of the handles provides for a pull of up to 250 lb. According to company literature, the handle bag was developed primarily because of the sharp rise in

retail bulk packaging to increase saleability of the product and to lessen the handling cost to retailers. The company also reports that the handle feature encourages customers to carry home one or more packages because of the easy-carrying easy-to-pour feature. For details check No. 7631 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7581 — Automatic unloader, Butler Manufacturing Co.

No. 7582 — Molasses feed scale, Richardson Scale Co.

No. 7583—Bin vibrator, Eriez Manufacturing Co.

No. 7584 — Dealer program brochure, William Davies Co., Inc.

No. 7586—Engineering service, V. D. Anderson Co.

No. 7587—Inert atmosphere generators, Gas Atmospheres, Inc.

No. 7588—Molasses product, Vy-Lactos Laboratories, Inc.

No. 7589—Bulk feed body, Gerber Sheet Metal, Inc.

No. 7590—Bulk or feed body, Trail-

Send me information on the items marked:

- ☐ No. 7624—Conversion Truck Unit
- ☐ No. 7630—Mastitis Ointment
- ☐ No. 7631—Handle Bag
- ☐ No. 7632—Automatic Batching Control
- ☐ No. 7633—Vibration Inducer
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co Manufacturing & Sales Co.

No. 7591—Sales booklet, Perrygraf Corp.

No. 7592—Package Pneumatic system, Sprout, Waldron & Co., Inc.

No. 7593—Bag flattener, New London Engineering Co

No. 7594—Vitamin K product, Abbott Laboratories

No. 7595—Portable grain conveyor, Myers-Sherman Co.

No. 7596—Feed, fertilizer body, Simonsen Manufacturing Co.

No. 7597—Tractor shovel, The Frank G. Hough Co.

No. 7598—All-steel hog pen, Starline, Inc.

No. 7599—Vitamin K product, Heterochemical Corp.

No. 7600—Fish meal dryer bulletin, Standard Steel Corp.

No. 7601—Dust collector, Ripco Air Systems.

No. 7602—Bulk fumigant applicator, Ferguson Fumigants, Inc.

No. 7603—Feed Fat Bulletin, Procter & Gamble Distributing Co.

No. 7604—Shovel-barrow, Gar-Bro Manufacturing Co.

No. 7605—Fall pack promotion, Chas. Pfizer & Co., Inc.

No. 7606—Booklet on coccidiosis, Dorn & Mitchell Laboratories, Inc.

No. 7607—Air vibrator bulletin, The National Air Vibrator Co.

No. 7608—Bagging scale, Richardson Scale Co.

No. 7609—Temperature systems, Hot Spot Detector, Inc.

No. 7610—Half-round aeration, Rolfes Grain Aeration Companies.

No. 7611—Materials handling unit, Conveyors & Dumpers, Inc.

No. 7612—New size package, Abbott Laboratories.

No. 7613—Checkweigher literature, Toledo Scale.

No. 7614—Bulk storage tank, Leach Manufacturing Co.

No. 7615—Auto leasing study, Foundation for Management Research.

No. 7616—Push button hog feeder, Parker Feeders, Inc.

No. 7617—Large grain bin, Martin Steel Corp.

No. 7618—New catalog, Burrows Equipment Co.

No. 7619—Bulletin on stream splitters, Sprout, Waldron & Co., Inc.

No. 7620—Hard-grains roller mill, Ross Machine & Mill Supply Inc.

No. 7621—Fresh egg merchandiser, Tobias Enterprises.

No. 7622—Power drum handler, Specialty Machinery Corp.

No. 7623—Dual motor vibrator, Cleveland Vibrator Co.

No. 7624—Conversion truck unit, Ripco Air Systems.

No. 7625—Equipment catalog, the Bauer Bros. Co.

No. 7626—Crusher bulletin, Metals Disintegrating Co., Inc.

No. 7627—Drag plate conveyor, Strong-Scott Manufacturing Co.

No. 7628—Dairyman's Promotion, Hess & Clark.

No. 7629—Moisture barrier, Knott Chemical Co.

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Better nutrition is our business — not just the scientific formulation of vitamin-trace mineral fortifications. That's why at Ultra-Life, laboratory scientists, farm servicemen and marketing men *Follow Through* on shipments of Ultra-Life products — to help produce better sales for the feed manufacturer and better nutrition for the feeder.

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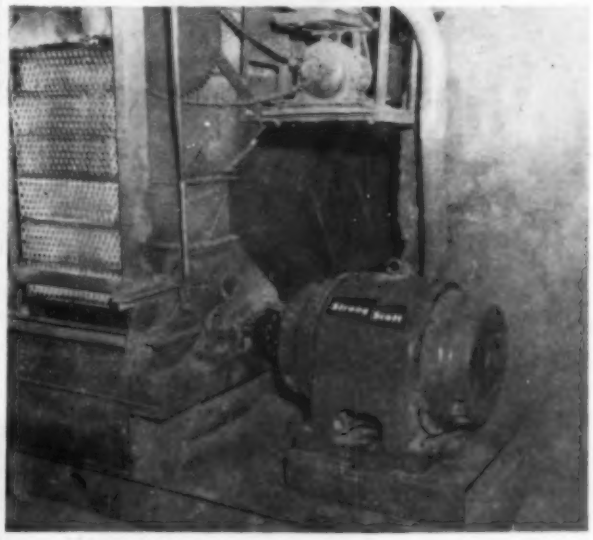
Strong Scott

"WE CUT OUR GRINDING POWER COSTS BY 29% AND DOUBLED OUR FEED VOLUME..."

says Galen Hartung, manager of Dane County Farmers Union Co-Op, Cottage Grove, Wisconsin

Galen Hartung, above, manages the new Dane County Farmers Union Co-Op elevator which was completed in 1958 by Hogenson Tank and Construction Co.



Not one screen has had to be changed on this Hammermill. The 100 H.P. motor on the mill and 40 H.P. on the blower provide the ideal combination for efficient, high-capacity grinding at Dane County Farmers Union Co-Op.

"One year ago we installed our Strong-Scott quick change Hammermill," said Galen. "Since then, our books show that we have doubled our income from grinding and that our power costs were 29% less than what they used to be with our old mill.

"We are still grinding on the first of the four corners of the hammers which have given us over $14,000.00 income at a charge of 8 cents per CWT for custom grinding.

"We get very good capacity from our Hammermill and use the quick change constantly," he concluded. "We have never had any maintenance at all." The Strong-Scott Hydraulic Truck Hoist is also used at Cottage Grove.

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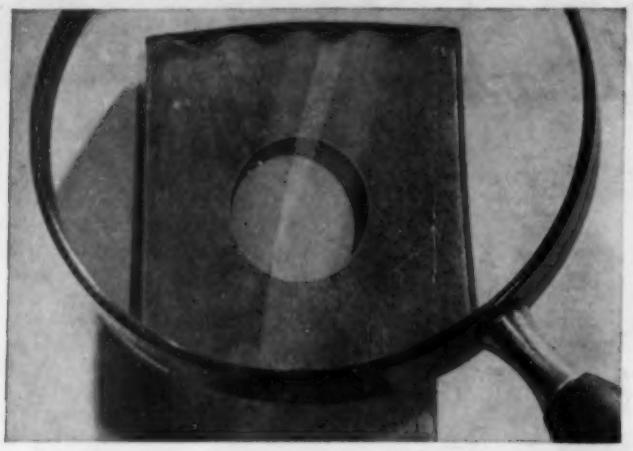

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Cut your grinding costs with new PACAL Hammers. Serrated-Head* design holds 50% more tungsten-carbide, sharpens with wear, cuts cleaner. Last 25% longer than ordinary hard-faced hammers.

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Inedible Tallow, Grease Production Expanding More Than Its Markets

WASHINGTON—Domestic markets for inedible tallow and grease have not expanded as much as production has increased in recent years, according to a report recently issued by the U.S. Department of Agriculture.

The report says it is essential that the rendering industry increase its efficiency in processing and marketing to give it a greater share of the fats and oils and protein feed markets.

About 40% of the U.S. production of inedible tallow and grease was exported in 1958. Currently, the U.S. accounts for about 72% of the world trade in these products. However, there has been a steady decrease in domestic industrial use of inedible tallow and grease.

Most important, says the report, synthetic detergents have significantly diminished the soap market as an outlet for these products. This development, together with the increasing availability of raw materials because of more livestock slaughtered, has created a surplus of inedible tallow and grease.

The largest new potential domestic market for inedible tallow and grease is the mixing of these fats with animal feeds, according to the USDA reports. This usage has increased in recent years but, according to Agricultural Marketing Service researchers, the market potential has yet to be fully realized. Renderers must see that their supply of fat is of suitable quality to meet the needs of the feed-mixing plants, officials said.

Production of meat scraps and tankage also has been increasing. These products are valuable as a high protein feed supplement in the rapidly growing mixed-feeds industry or for use in fertilizers, say the researchers.

"Renderers, however, must consider the problem of quality control as a step toward improvement of the market for meat scraps and tankage," said USDA.

A free copy of the report, "The Inedible Tallow and Grease Industry, Changes in Markets, Practices and Costs," Marketing Research Report No. 342, may be obtained from the Office of Information, U.S. Department of Agriculture, Washington 25, D.C.

Report Antibiotics Clean Environment

STORRS, CONN. — Continuous feeding of antibiotics to broilers over a number of years produces an environment with a lower disease potential, according to Dr. Lloyd D. Matterson, professor of poultry nutrition, University of Connecticut.

Dr. Matterson says this partly explains the lessening growth response to antibiotics of birds grown in quarters where antibiotics have been fed for two or more preceding years.

In studies at the Storrs Agricultural Experiment Station at the university, Dr. Matterson found that the growth response, during the first week of birds fed antibiotics over birds fed basal rations, was increased equal to the response obtained in 1951—the year antibiotic feeding began.

However, after one week responses decreased steadily and became essentially zero at eight weeks. The experimental rations were the same as those fed in 1951.

The initial improvement in response followed by a sharp falling off leads Dr. Matterson to the conclusion that antibiotics cleaned the environment.

The experiments were carried out in facilities in which antibotics had been used extensively for the past nine years.

FIRM INCORPORATED

WOODLAND, CAL. — The Hartmann Brothers Farm Enterprises is now incorporated at an evaluation of half a million dollars. John and J. P. Hartmann are principal owners of the firm, which processes baled hay for animal feed.

A POINT TO REMEMBER

PILOT BRAND OYSTER SHELL

HELPS YOU AND YOUR CUSTOMERS MAKE MORE MONEY

Poultry raisers know that PILOT BRAND helps them get more high quality eggs with stronger shells . . . the kind that bring top prices in the market.

Alert dealers, aware of the steady profits PILOT BRAND gives them, stock and display this best seller all of the time. And national advertising in leading farm journals and on 70 key radio stations is constantly increasing the demand for PILOT BRAND.

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IRRADIATED DRY YEAST

RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

REMEMBER TO ORDER

CHASE BAGS

There's None Better!

The Ruser brothers own and operate a commercial feedlot capable of handling 40,000 cattle a year. They have fed Stilbosol to steers and heifers since it became available late in 1954.

The Rusers use this big "stock market type" blackboard to keep track of rations being fed, length of feed, and lot weights. Tight record keeping like this has shown the Ruser brothers how consistent Stilbosol has been in helping boost gains and cut feed costs.

4 years of higher gains keep this commercial feeder using Stilbosol

"Since we made our first conclusive test with Stilbosol, we have fed it to almost 100,000 steers and heifers," says Bob Ruser.

by Eugene S. Hahnel

"We have been getting an average daily gain of about 2.75 pounds in our lots during the past three years," young Bob Ruser told us during a recent return visit. "We got about 2.50 pounds daily gain in the days before Stilbosol. As you can imagine from these figures, we count heavily on Stilbosol as a regular part of our cattle feeding business."

Records were the deciding factor

Back in 1955, Bob Ruser and his brother, Dale, conducted a 140-day comparison test to check Stilbosol benefits. In their usual careful way, they separated two equal lots of 28 head each. The lot that received Stilbosol supplement in its ration averaged ⅓ pound more daily gain than the control lot (no Stilbosol, but otherwise the same ration).

The ration which contained supplement with Stilbosol also lowered cost of gain by 2 cents a pound.

"That sold us," the Rusers agreed. "Extra gains and lower costs mean at least $5 a head to us."

"Today," Bob admits, "it would be difficult to feed cattle profitably without using Stilbosol!"

*Recent summary of 20 college tests supports feedlot results**

STILBOSOL

Gain stimulation.....18%	Cost/steer/150 days.....$0.63
Feed savings.....12%	Return/steer/150 days..$10.04
Cost/ton supplement.....$4.28-$8.40	Return/dollar cost.....$15.93

**As reported at Iowa State College Cattle Feeders Day, March, 1959.*

Lilly **SALES TIPS FROM GRASS-ROOT SOURCES**

RUSER BROS., VENICE, NEBRASKA

Based on the facts and figures revealed by the Ruser brothers, supplements with Stilbosol . . .

1. **Increased their return per steer or heifer by at least $5.00 since Stilbosol supplements became available.**
2. **Consistently produced ¼ lb. extra daily gains (average) over a period of four years.**
3. **Convinced these veteran commercial feeders that Stilbosol in supplements is extremely important to profits in the cattle feeding business.**

Stilbosol®
(diethylstilbestrol premix, Lilly)
Lilly

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BIN VIBRATORS

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Only economically priced electro-permanent magnetic unit (bin) vibrators fully acceptable by Mill Mutual Fire Prevention Bureau.

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Newest, most efficient answer to those hard-to-move feedstuffs which clog and stick in bins. Designed to provide superior operating efficiency, these HI-VI Vibrators have exclusive pinpointed vibration impact which gets right to the trouble spot—starts and keeps materials flowing freely.

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A WEEKLY NEWSPAPER
For the Feed Manufacturer, Feed Jobber
Feed Broker and Feed Dealer

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22.9 Million Beef Calf Crop Total Is Predicted

URBANA, ILL.—The 1959 beef calf crop is expected to be about 22.9 million head, 8% more than the estimate of beef calves dropped last year, according to L. H. Simerl, agricultural economist, University of Illinois.

Mr. Simerl says this is a new record high, though only 3% more than the number dropped in 1955, the previous high year.

In comparison with population, the beef calf crop for this year is about 7% short of the 1955 record, according to Mr. Simerl. He says the nation's dairy herd continues to shrink and less beef is therefore being obtained by slaughter of dairy cows. The number of cows kept for milk shrank from 23.5 million at the beginning of 1955 to 21.6 million this year, a decrease of 8%.

The total 1959 calf crop is officially estimated at 41,328,000 head, 2% more than the 1958 crop and 3% short of the previous record of five years ago. (See USDA figures on page 52 of Aug. 1 Feedstuffs.)

"Official reports do not separate beef and dairy calves," says Mr. Simerl, "but we have calculated the number of calves dropped by cows not kept for milk. We call these beef calves in this report."

Illinois. The total 1959 calf crop in Illinois is estimated at 1,244,000 head, 3% less than in 1958 and 10% less than five years ago. Dairy cow numbers in Illinois are being reduced faster than beef cows are being increased. At the beginning of this year, Illinois had 783,000 milk cows two years and older, and 615,000 other cows.

Plains states. The 1959 total calf crop in Texas is estimated at 4,121,000 head, 4% more than last year, but short of the 4,242,000 head produced in 1954. Oklahoma shows 1,529,000 calves, 8% more than last year but a little short of the calf crops of four to six years ago. Kansas reported 1,468,000 calves, up 7% from 1958, though 20% short of 1954. Nebraska, with 1,732,000, has 4% more than last year but 6% less than five years ago. The Dakotas report 2,352,000, 2% more than in 1958 but 2% below the record set four years ago.

Western states. For the 11 Western states, the 1959 calf crop is estimated at 7,179,000 head, 3% more than in 1958 and practically equal to the record crop produced by those states in 1955.

Yearlings. At the beginning of this year, it was estimated that farmers had 19,755,000 head of calves under one year old and not being kept for milk, 7% more than the year before but 4% above the previous record set three years before. Compared with population, the number of calves was about 1% less this year than in 1956.

Calf slaughter low. While the 1959 calf crop approaches a record, slaughter of calves so far this year has been very light. Commercial slaughter during the five months January-May totaled 3,158,000 head, 22% less than last year and 35% less than two years before.

A FORTUNE IN EGGS?

GLORIETA, N.M.—One way to realize a fortune from eggs is to buy them from the Isaac Lapp ranch here.

Mrs. Lapp types up a "fortune" on a small slip of paper—similar to the predictions and proverbs found in Chinese fortune cookies—and inserts it in each carton of eggs. Customers come from miles around.

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USDA Announces 'Controlled Quality' Egg Program

WASHINGTON — A new "controlled quality" egg grading program, to become effective Sept. 15, is provided in amendments to regulations governing grading and inspection of shell eggs and U.S. standards, grades and weight classes for shell eggs, the U.S. Department of Agriculture has announced.

This program provides for government certification of the quality of eggs which are produced and marketed under controlled conditions. The quality control factors specified include uniformity in age of laying flocks, constant temperature and humidity levels, and promptness in handling.

Eggs handled according to these requirements and meeting the quality standards proposed will be eligible for either the U.S. Grade AA label or the new grade label designation, "Fresh Fancy Quality." Eggs meeting the standards for A quality also may be identified as having been produced under the quality control program.

New Test

Interior quality of such eggs will be measured by a new test which involves breaking representative samples and measuring the height of the albumen (thick white). This measurement is to be expressed in terms of "Haugh" units — scale readings based on the weight of the egg and the albumen height.

USDA has been using the quality control program on a trial basis at a number of egg packing plants in different parts of the country during the past year and a half. This afforded an opportunity to adapt the program to industry's needs and to test its practicality before incorporating it into the official regulations and standards.

The present program for shell egg grading, which involves candling to determine interior quality, will be continued for those not using the quality control program.

The amendments also include a requirement that all shell egg graders licensed by USDA be federal or state employees, as most of them now are.

Other Changes

Other changes in the regulations and standards modify tolerances for lower quality eggs in the procurement grades, which are used for governmental purchases. These changes will improve the quality and uniformity of eggs in the procurement No. 1 grade.

In addition, new export grades are provided for voluntary use by shell egg exporters. These grades are similar to the procurement grades, except for the name. Included as part of the requirements for the export grades, however, are packaging standards that specify new standard cases and inner packaging materials.

The amendments to the regulations and standards were published in the Aug. 15 Federal Register. Copies are available on request from: Poultry Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington 25, D.C.

Agreement Reached

BUFFALO, N.Y. — Grain Elevator Employees Local 1286, International Brotherhood of Longshoremen, reached a tentative agreement with the Cooperative G.L.F. Exchange and the Buffalo Grain Terminal, formerly Connecting Terminal Grain Elevator.

John R. Roberts, president of the local, said a 15¢ raise for all employees was accepted during the meeting with management officials.

Fire Destroys Elevator

OMAHA, NEB.—A fire virtually destroyed a six-story grain elevator at the Westcentral Cooperative Grain Co., here recently. Charles Sailors, superintendent, said there was no grain in the building. The main elevator, separated only by a two-story powerhouse and shop, contained about 300,000 bu. of grain, he said.

JOINS EXCHANGE

STOCKTON, CAL.—The Christoffersen Poultry, Egg & Feed Co. of Turlock, Cal., has joined the Stockton Grain Exchange.

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Chlortetracycline Level (grams)	NO	NO	NO	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES P-50 T-100
Oxytetracycline Level (grams)	NO	NO	NO	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES 50
Bacitracin Level (grams)	NO	NO	NO	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	NO	NO	NO	NO	YES P-50 T-100
Penicillin and Streptomycin Level (grams)	NO	NO	NO	NO	NO	NO	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	NO	NO	NO	NO
Penicillin Level (grams)	NO	NO	NO	NO	NO	NO	YES T-100	YES T-100	NO	NO	NO	NO	NO
Penicillin and Bacitracin 37½B plus 12½P Level (grams)	NO	NO	NO	NO	NO	NO	YES P-50	YES P-50	NO	NO	NO	NO	YES P-50 T-100

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T — number grams for treatment of disease.

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To improve egg production and feed-egg ratios use ½ lb nf-180 Concentrate** per ton complete feed — the low-level continuous feeding plan.

To ward off stress and disease threats —use 2 lbs nf-180 Concentrate per ton complete feed one Week-A-Month.

Chicks and Pullets

To protect their start — ward off disease and reduce death losses, use 2 lbs nf-180 Concentrate per ton in pre-starter for first pound of feed per chick.

For growing birds — use 2 lbs nf-180 Concentrate per ton one Week-A-Month to keep disease level from building up — to prevent trouble.

Broilers

To start 'em fast, keep 'em alive, protect against many early-life diseases, use 2 lbs nf-180 Concentrate per ton for first pound of feed per chick.

Use 2 lb nf-180 Concentrate booster feed 5 to 7 days when needed to fight stresses.

During finishing period, use 1 lb nf-180 Concentrate per ton to prevent rejects and downgrading caused by C.R.D., Synovitis, secondary infections, and Enteritis problems.

Turkeys

To keep disease down and livability up, use 2 lbs nf-180 Concentrate per ton all through starting feed period.

During growing-finishing period, use 1 to 2 lbs nf-180 Concentrate per ton continuously or 2 lbs periodically, depending on disease problems.

For breeders — put them on 2 lb nf-180 Concentrate per ton for two weeks when selected and then continue 1 lb level all through the laying season.

Swine and Rabbits too

As treatment for necro and bloody dysentery in swine, use 6 lbs nf-180 Concentrate per ton of complete feed for 10 to 14 days.

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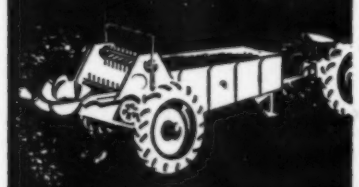

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Program Outlined For 3rd Minnesota Retail Feed School

ST. PAUL — A concentrated in-service training program for feed elevator and mill foremen and assistant managers has been arranged for the third annual Retail Feed Dealers Training School to be held Jan. 4-8 on the St. Paul campus of the University of Minnesota.

Prof. J. O. Christianson, director of agricultural short courses, announced that the course will be under the supervision of Prof. Harold C. Pederson, extension economist in marketing.

The tentative program includes these subjects: Importance of the retail feed business; functions of business planning; direction and control; forage crop seed mixtures; effective business planning; credit problems; organization and delegation of responsibility; swine, dairy, poultry and beef cattle management and nutrition; home produced feed and the local feed dealer; education and control in business management, and integrating total functions of management.

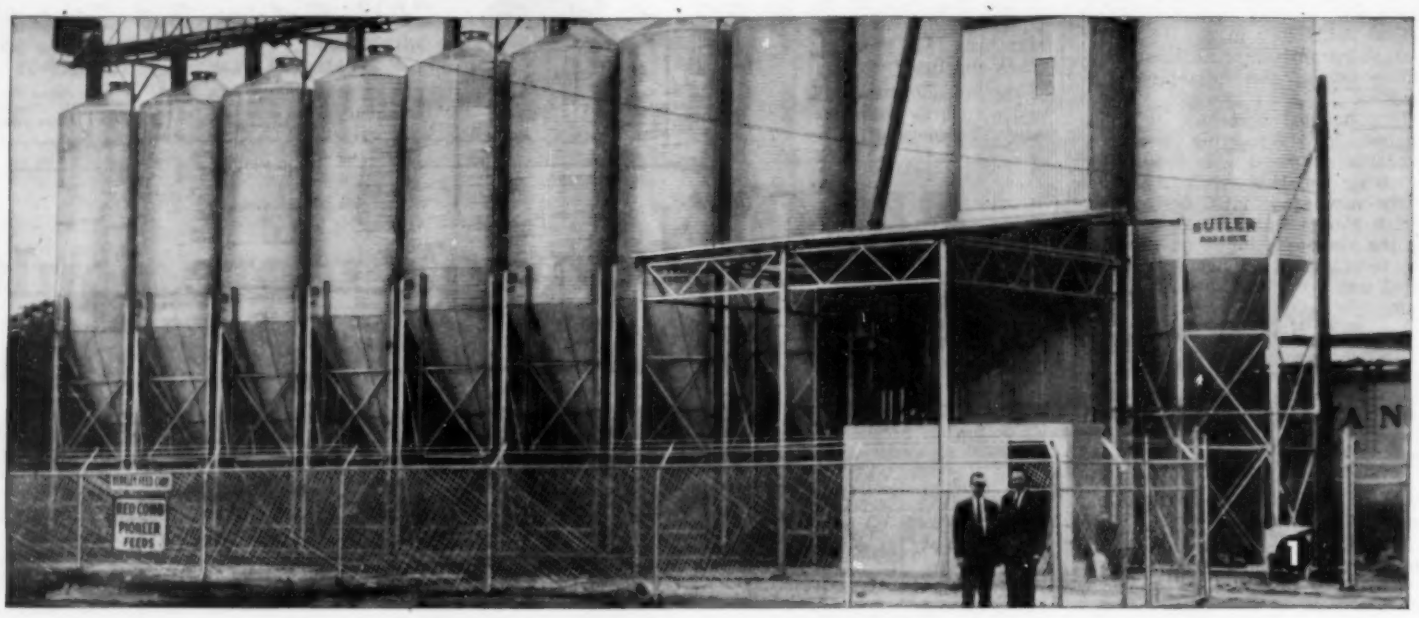
Short course instructors will include University of Minnesota faculty members, retail feed industry representatives and Dr. Richard Phillips, professor in agricultural economics at Iowa State University. University of Minnesota staffers to be on the program are: Dr. R. P. Dahl, department of agricultural economics; Dr. E. L. Johnson, head, department of poultry husbandry; Dr. Olaf E. Kolari and Dr. R. J. Meade, department of animal husbandry; Prof. H. R. Searles, extension dairyman, and Dr. Paul E. Waibel, department of poultry husbandry.

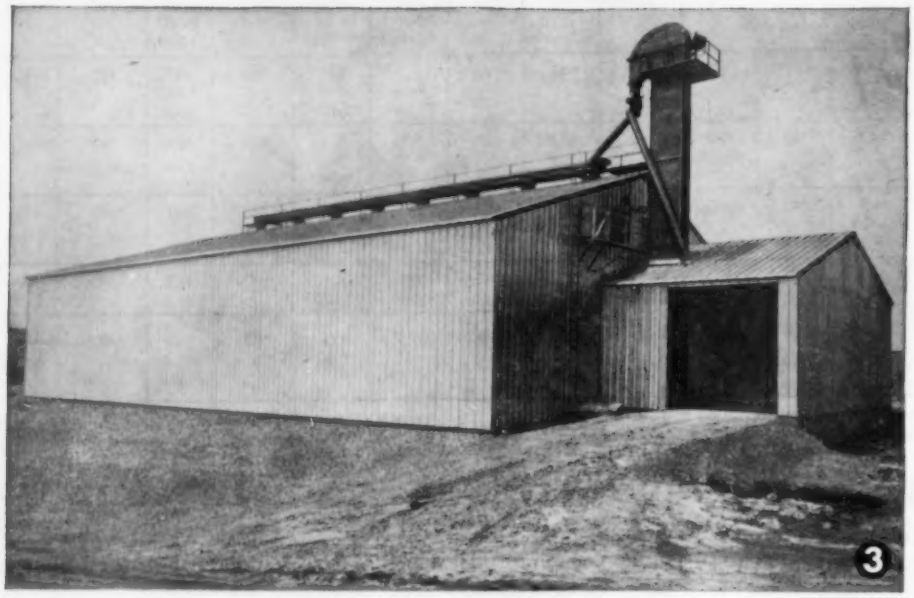
Prof. Christianson announced that all courses during the training school period would be conducted on a college classroom basis. "Early registrations are urged since only the first 50 registered can be accepted, and no registrations can be accepted after Jan. 1," he said.

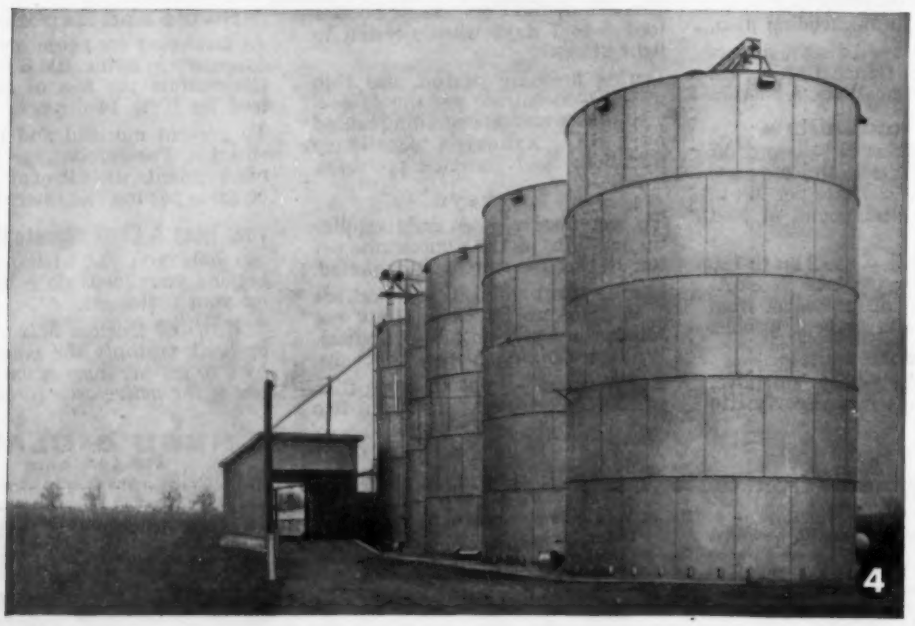
Certificates will be awarded to those who complete the training course program, which is being prepared under the sponsorship of the University of Minnesota in cooperation with the Northwest Retail Feed Assn., Minneapolis Grain Exchange and other allied trade groups.

FIRM INCORPORATES

LOS GATOS, CAL. — Clara Feeds has been incorporated in Los Gatos, offering feed products to local livestock raisers.







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5. **Planning a feed processing plant?** Tindle Milling Company, Springfield, Missouri used Butler square bolted steel tanks to create this modern high-speed, batch-feed mixing plant. Hopper scales, mixers and the pneumatic handling system are push-button controlled for fast handling.

A. E. Staley Has Forum For Formula Feed Men

DECATUR, ILL. — A fact-finding forum type of meeting for all formula feed salesmen of the A. E. Staley Manufacturing Co., Decatur, corn and soybean processor, was conducted Aug. 20-22 at Allerton Park in Monticello, Ill.

Some 70 salesmen from midwest and southeastern states attended the meeting that dealt with feed sales and services. There were sessions on nutrition, animal husbandry, territory management and the annual fall feed fair promotions.

L. E. Doxsie, manager of Staley's corn division, was the featured speaker following a dinner meeting held at the Decatur Country Club.

E. E. Rhodes, manager of the Staley soybean division, Ted Mitchell, formula feed sales manager, Harold Bruniga, field sales manager for formula feeds, and Rudy Dennis, administrative assistant to the manager of formula feed sales, also took part in the program.

The meeting was arranged by Charles F. Hicks, director of merchandising, education and advertising in the formula feed department. Mr. Hicks was assisted by R. H. Dibb, advertising supervisor.

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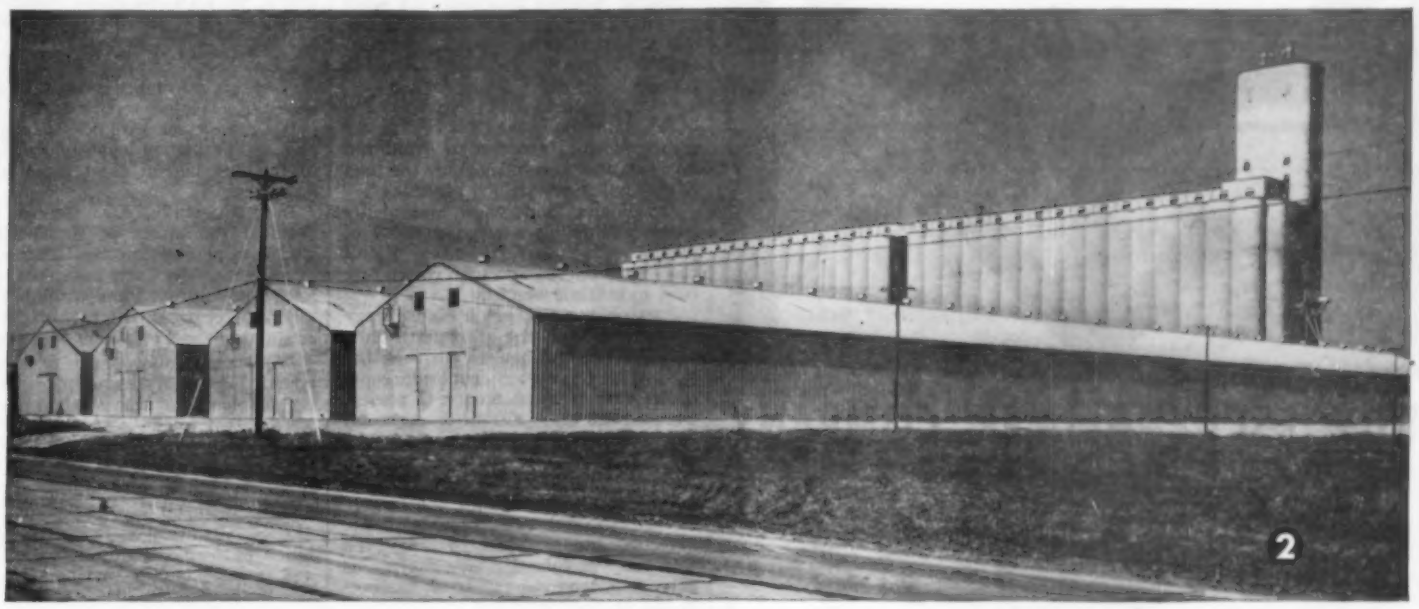

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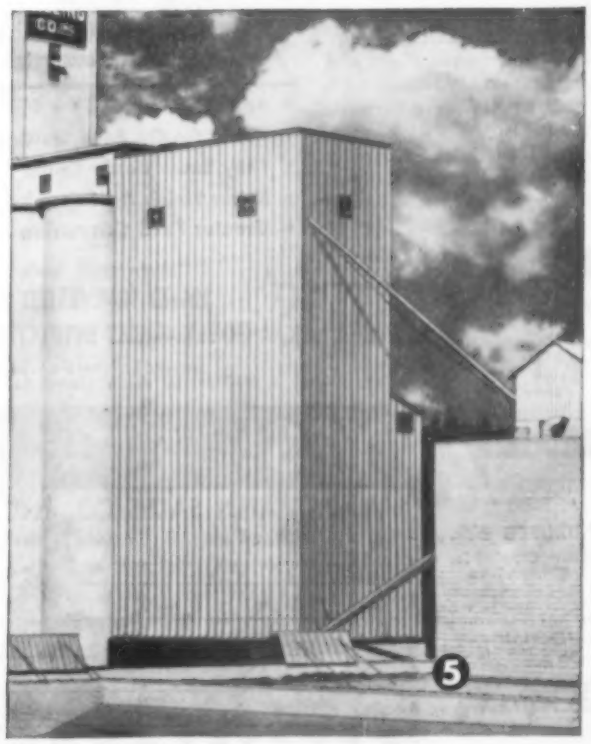

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Rations to Mold Pigs into Type Wanted Seen at Michigan Event

By BOB BATTIN
Michigan State University

EAST LANSING, MICH. — "The feed industry will eventually be called upon to prepare rations that will mold pigs into the type of hogs that are wanted on the market."

So predicted Dr. J. A. Hoefer, swine researcher at the Michigan Agricultural Experiment Station, here recently. He was addressing the more than 300 Michigan hog raisers and feed dealers attending the 4th annual Michigan Swine Day, Aug. 13.

"Some day we may penalize hogs that are carrying too much lard," declared Dr. Hoefer. "And improved feeding is one of the fastest ways a farmer can solve a lard problem.

"But if no premium is paid for the high quality hog—the hog that was grown slower in order to avoid the lard—neither the farmer nor the feed dealer will have gained anything."

Dr. Hoefer made these statements while explaining an experiment in which he evaluated the effect of full feeding to 125 lb., and then restricting feed to market weight.

Pigs on the test got a high energy basal feed from the start until they weighed 125 lb. Then, to cut back the fat-producing energy content, some of the corn was replaced with barley, oats, wheat bran, alfalfa or corn and corn cob meal.

"This project was based on the theory that up to a certain point the pounds a pig puts on are due largely to growth and development of the skeleton and muscle structure," the scientist explained. "Weight gains after that are more due to an increase in the proportion of fat.

"We restricted the energy intake with the intention of supporting only additional muscle development," he went on. "We did not want the pigs to turn the feed into a lot of fat.

"It is possible to do this with hand feeding," Dr. Hoefer admitted, "but we wanted to use the high fiber feeds to see if we could get around the high labor problem which accompanies hand feeding. Using the less digestible fiber feeds should let us accomplish the same thing," he added.

The Michigan scientist's first trial results indicate that the rate of gain and feed efficiency of pigs fed the high energy ration were superior to the pigs receiving the lower energy rations even though they were equal in protein content. The group getting the corn ration gained 55% faster than the group getting alfalfa. The group on barley was second, wheat bran third, corn cob meal fourth and oats fifth.

Dr. Hoefer had speculated earlier that if the level of fiber proves to be of greater importance than the source, then rations based on corn and cobs may affect improvement in both carcass quality and economy of production.

"In spite of the fact that the fiber-containing rations were equal in protein, TDN and fiber," he reported, "there must be something about the source of fiber that accounts for the differences in performance."

Pigs as they individually reached 210 lb. were slaughtered and complete carcass data obtained. Results of the effect of the different rations on the carcass quality are not yet available, he said.

Corn is Corn

Michigan Swine Day visitors also heard a report on a comparison of high moisture corn, artificially dried corn and naturally dried corn for growing and finishing swine.

"All three types of corn were essentially the same in terms of nutritive value," Dr. Hoefer said. "However, there was some tendency for pigs on the high moisture corn to eat more supplement."

The way it looks now, the scientist added, getting different supplements to go with the various types of corn used won't need to be considered.

Dr. Hoefer said that the feeding industry will have to review its standards with regard to mineral levels in swine rations. "It appears we are feeding more calcium than is necessary," declared the researcher.

The National Research Council currently recommends .8% calcium be included in rations for pigs above 25 lb. and .65% calcium for pigs over 50 lb.

Dr. Hoefer cited results of experiments at the Michigan station to back up his claim that these levels are higher than necessary.

Three levels of calcium—.3, .5 and .7%—were fed to pigs on test. In each case, Dr. Hoefer reported, the pigs getting the lower level did better than pigs at the higher level, and all pigs in the lots had at least some parakeratosis.

In the study, Dr. Hoefer also checked the effect of supplemental zinc with pigs getting the three levels of calcium. "In each case, performance was improved and we didn't get any parakeratosis with pigs on rations containing the extra zinc," he stated.

"And what's more," the researcher added, "at the .3% level, pigs getting the supplemental zinc reached market weight two weeks sooner than their competitors not getting the zinc. At the .5% calcium level, pigs not getting zinc took an additional two months to reach market weight."

These results point out the importance of feed manufacturers adding and farmers buying rations that contain extra zinc, he said.

Pigs and Slats

Visitors also got a glimpse into swine raising in 1975 when they saw

GIVE HIM A TIP
HE'LL THANK YOU FOR
Remind him to order Morton T-M Salt. *See page 61.*

B. G. Sanders

C. MacDougall

PROMOTIONS — The feed ingredients department of International Minerals & Chemical Corp. recently announced the promotion of Benjamin G. Sanders to assistant sales manager and Colin MacDougall to field sales manager. John W. Westberg, sales manager, said the appointments are part of a continuing program to strengthen headquarters support of IMC's sales agents in the U.S. and Canada. Mr. Sanders, who came to IMC in 1955, had been manager of technical service, and Mr. MacDougall, with IMC since 1954, was central area manager for the feed ingredients department.

pigs being raised on a slatted floor. Dr. Hoefer is checking out the idea to see if it has a place in push button, assembly line rearing of hogs.

Pigs on the slatted floor were exceptionally clean. They would grind droppings through the half-inch openings between the two-inch slats with their feet. The floor had not been cleaned since the experiment started and the area under the floor is cleaned about every two weeks.

"Up to now we have gotten normal performance," Dr. Hoefer indicated. "We are running comparative performance tests but won't know the results for several weeks yet.

"We have had no foot trouble of any kind yet and pigs seem to be happy with the slatted floor," he said.

A mechanical cleaner could be used under the floor to remove droppings. This would take a lot of work out of one of the toughest jobs in big-time swine raising—that of getting rid of the manure, he said.

Delaware Poultry Conference Sept. 2

GEORGETOWN, DEL. — Poultrymen have been invited to the University of Delaware agricultural substation near Georgetown Sept. 2 for their annual open house with poultry research scientists, according to an announcement by J. Frank Gordy, director of the substation.

Mr. Gordy said the researchmen heading the various projects will explain their findings on floor space studies, soybean processing methods, feed equipment evaluation and antibiotic enhancement work.

A special speaker, Harold Snyder, Dardanelle, Ark., will talk about mergers in the broiler business. Mr. Snyder is president of Arkansas Valley Feed Mills, Inc. He is credited with originating the poultry industry in the Arkansas Valley area and now directs a totally integrated production of more than 15 million broilers annually.

The affair will begin with a barbecued chicken dinner at 12:30 p.m. followed by a tour of the poultry houses. A question period will follow the talks, Mr. Gordy said.

OFFICERS ELECTED

TWIN FALLS, IDAHO — Rex Storey, Nampa, was elected president of the Idaho Poultry Improvement Assn. at a convention here recently. Other officers include Weldon Fry, Boise, vice president; Joe Ison, Caldwell, secretary-treasurer, and directors, Ralph Miller, Preston; Tommy Jorgenson, Blackfoot, and Jack Merfill, Paul.

SAVINGS

Your customers can cut egg costs 1¢ to 6¢ a dozen with the help of your EGGtober Feeds containing Terramycin®*.

*Based on extensive college and commercial trials.

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Science for the world's well-being

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COMPLETE LINE OF FEED INGREDIENTS
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BALTIMORE 1-2050

Improved Grain Fumigation

"Two effective new fumigants with excellent penetrating power offer specific advantages for bulk grain fumigation."

By Marshall Manns
Michigan Chemical Corporation

Grain warehousemen who know how fast stored grain can become infested and then down-graded from top market price should welcome the availability of these two new fumigants: *Pestmaster Fumigant 37*** and *Pestmaster Fumigant 73***. Whether your fumigation program provides for custom fumigation or the use of your own personnel, you will want to know more about these two products.

Both fumigants, Pestmaster 37 and Pestmaster 73, are a combination of two highly effective grain fumigants: ethylene dibromide and methyl bromide. When these materials are used in combination, the resulting mixture becomes a very effective fumigant with excellent penetrating power.

Pestmaster Fumigant 37

Pestmaster Fumigant 37 is a mixture of 30% ethylene dibromide and 70% methyl bromide. It is recommended for bulk grain fumigation by forced distribution or recirculation in buildings equipped with aeration systems. Under these conditions, and with proper application, Pestmaster Fumigant 37 provides the following advantages:

• Effective Kill

The extremely high killing power of methyl bromide (70% by volume) is complemented by the heavier ethylene dibromide (30% by volume). The highly volatile methyl bromide causes the less volatile and heavier ethylene dibromide to penetrate the grain mass thoroughly, thereby permitting rapid contact by both of these highly toxic materials with rodents and insects. The result is a thorough kill of rodents and insects in all life stages throughout the grain mass.

• Economical Kill

Under certain conditions, the use of Pestmaster 37 may allow the operator to effect a number of economies in fumigant used with resulting lower cost of handling.

• No Special Equipment

An outstanding advantage of Pestmaster 37 is its ease of application. It is contained in pressurized steel cylinders. This pressure will empty the cylinder quickly when the valve is opened. The only equipment needed is polyethylene tubing to conduct the gas into the building. No compressors, pumps, metal piping or drop nozzles are necessary. Set-up time is fast; this, in turn, is reflected in low labor costs.

It should be emphasized that the success of the application will be further assured if use is made of forced distribution or recirculation equipment. Your distributor or custom fumigator can advise the best way to utilize such existing equipment in fumigating your buildings.

• Handling Safety

Pestmaster 37 gives off a distinct warning odor. The odor, however, will not remain in the grain. It dissipates rapidly as the building is aerated.

Pestmaster Fumigant 73

Pestmaster 73 is a mixture of 70% ethylene dibromide and 30% methyl bromide. This combination is an excellent grain fumigant particularly suited for the treatment of localized infestations or "hot-spots" in aerated grain storages, and in small bins without aeration systems.

• Ideal for Hot Spots

Pestmaster 73 is a liquid packaged in convenient 6 fluid oz. cans. This handy size permits accurate dosage of localized infestations without the needless exposure of personnel in transferring liquid fumigant from larger containers.

• Economical for Small Storages

Small grain storage buildings, bins, etc., can be given the correct dosage by dispensing only the number of cans required as indicated by the amount and condition of the grain. These minimum dosages, in turn, are accompanied by minimum costs of material and labor. Additional savings may also be realized because special fittings, tubes, scales, etc., are not required.

• Safe, Easy to Use

Pestmaster 73 also has a distinct warning odor that provides operators an element of handling safety. The liquid vaporizes slowly. This lessens, considerably, the likelihood of exposure to toxic vapors during application. Pestmaster 73 is non-flammable, and will not corrode or damage protective coatings or materials. Insurance rates will not be affected by its use.

For Complete Information

Your nearest Michigan Chemical sales representative can supply full details on handling Pestmaster 37 and Pestmaster 73. He can also give you the name of the nearest distributor or custom fumigator in your area. In Kansas City: Robert C. Wagner, 3711 Forest Ave., phone: Grand 1-5652. In College Station, Texas: E. E. Ivy, 1306 Walton Drive, phone: VI 6-7345. In Palo Alto, Calif.: David M. Coleman, 3409 Cowper Street, phone: DA 6-2146. In Savannah, Georgia: Bogardus Werth, Barnett Drive, RFD Parkersburg, phone: Elgin 5-5186. Or write direct to me: Marshall M. Manns, Manager, Agricultural Chemicals,

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ONLY ELBA-WINCHDOZER HAS PUSH BUTTON CONTROL FOR MAXIMUM EFFICIENCY AND SAFETY IN UNLOADING BULK CARS

ELBA TELETRONIC CONTROL automatically starts and stops the scoop *at the touch of a finger.*

Elba-Winchdozer provides the most simplified system yet devised for bulk materials handling in box cars. With Elba's exclusive push button control, **at the scoop,** the operator has complete control of the winch and scoop. Built in electromagnetic clutch responds to commands instantly, makes unloading a one man operation that can cut your handling costs in half. Write for full information on this modern bulk handling system. Three models available, all reasonably priced.

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Please send me full information on your Elba-Winchdozer system for bulk car unloading. I am particularly interested in the: DALLI ☐ BULLY ☐ MOBY ☐

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STREET ADDRESS.....

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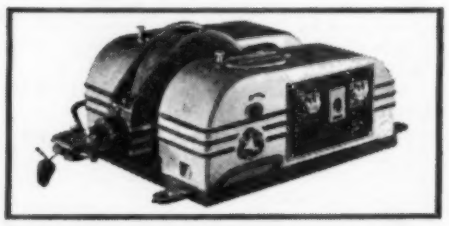
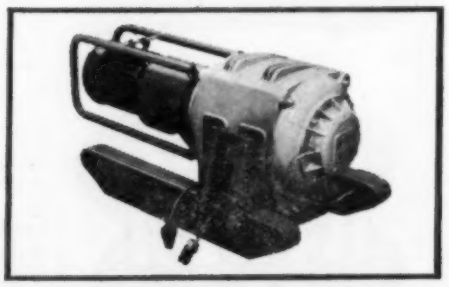
Choice territories available for qualified dealers.

DALLI – Popular standard model. Output – 30 tons of soft feed per hour. Generates a pull up to 1400 pounds. Powered by a 2.5 HP electric motor (220-440 volts) or 5 HP gasoline engine. It weighs 480 lbs.



BULLY – Extra power for heavier jobs and increased efficiency. Output – 40 tons of soft feed per hour. Generates a pull of 2400 pounds. Powered by a 3.5 HP electric motor (220-440 volts) or 8 HP gasoline engine. It weighs 870 lbs.



MOBY – A duplex unit, basically the same as the BULLY model. Output – 80 tons of soft feed per hour. Operates two scoops, each independently controlled by push-button switch. It weighs 946 lbs.

USDA Notes Increase in Use Of Feedstuffs This Season

WASHINGTON — Consumption of commercial feedstuffs totaled 16.4 million tons the first nine months of the 1958-59 season (October-June)—an increase of 1.1 million tons over the same months last season, and 2.5 million above the five-year average, according to a recent U.S. Department of Agriculture Feed Market News report.

Most of the increase in feeding over last year reflects the larger number of animal units. Around 170 million animal units will be fed in 1958-59 as against 161.5 million in 1957-58, according to the report. On the basis of current estimates, a record of 190 lb. of feed were fed per animal unit thus far this season, compared with 189 lb. last season, and 172 lb. for the five-year average.

June consumption of oilseed meals totaled 857,000 tons, a seasonal drop of about 70,000 tons, but 56,000 tons above June, 1958. This brought consumption for the first nine months to 9.2 million tons, or nearly 1 million tons more than a year earlier. Most of the increase was in soybean meal, with disappearance of 6.9 million tons so far this season, .9 million tons above last year.

Feeding of cottonseed meal increased by 150,000 tons and totaled 1.9 million the first nine months. Consumption of linseed and copra was down, with a small increase in peanut meal.

Consumption of wheat millfeeds increased in June, but the total thus far this season was down slightly. Feeding of other grain by-product feeds was at about last year's level.

Consumption of tankage and meat meal increased slightly over last year and totaled about 1.1 million tons.

Production of imports of fish meal increased sharply, with supplies of 282,000 tons thus far this season as against about 200,000 tons last season.

Shipments of alfalfa meal by producers during May and June were below last year, although production was higher. Producers' stocks at the end of June were slightly above a year earlier.

A summary of feed production, stocks, foreign trade and domestic disappearance for the October-June, 1958-59 period is shown in the accompanying table.

Feedstuffs: Production, Stocks, Foreign Trade and Domestic Disappearance, October, 1958 to June, 1959 (1,000 Short Tons)

Feedstuff	Stocks Oct. 1*	Production	Imports†	Exports†	Domestic disappearance	Stocks June 30*
Oilseed meals:						
Soybean	48.1	7,387.0	0	397.5	6,865.7	171.9
Cottonseed	71.2	1,859.1	121.7	5.2	1,893.1	153.7
Linseed	26.3	309.1	3.3	14.3	314.4	10.0
Copra	0.6	83.4	27.7	**	108.0	3.7
Peanut	1.5	59.4	0	0	55.4	5.5
Total	147.7	9,698.0	152.7	417.0	9,236.6	344.8
Other feeds:						
Wheat millfeeds	**	3,445.2	60.6	27.0	3,478.8	**
Rice millfeeds	**	172.4	**	**	172.4	**
Gluten feed and meal	**	765.2	**	**	765.2	**
Distillers dried grains	2.2	287.5	**	**	278.0	11.7
Brewers dried grains	4.9	167.8	**	**	167.9	4.8
Total	7.1	4,838.1	60.6	27.0	4,862.3	16.5
Grain by-products:						
Meat meal and tankage	**	1,052.6	8.5	**	1,061.1	**
Fish meal	**	173.3	107.9	**	281.7	**
Alfalfa meal	439.7	687.3	**	**	908.9	218.1

*Stocks at processing plants only. †Partly estimated. **Not available.

Pillsbury Announces Personnel Changes

CLINTON, IOWA—Clarence Bell, general sales manager of the Pillsbury feed division, has announced four changes in field sales management.

Jack Toeller, plant sales manager at Clinton, has been appointed plant sales manager at Ogden, Utah. Don Thayer, also a plant sales manager at Clinton, will assume responsibility for all sales in the Clinton plant area. E. C. Rulifson, Ogden plant sales manager, has been appointed plant sales manager at Centerville, Iowa. Linc Auld, Centerville plant sales manager, will transfer to Clinton to become sales supervisor, administering a special merchandising program in the Clinton area.

Mr. Toeller joined Pillsbury as a resale man in 1942. He became plant sales manager at Atchison, Kansas, in 1954, and transferred to Clinton in 1956. Mr. Thayer has been with Pillsbury feeds since 1936. He was appointed Clinton plant sales manager in 1954. Mr. Rulifson joined Pillsbury as plant sales manager in 1958. He has been associated with feed sales since 1939. Mr. Auld has held various feed sales management positions since he joined Pillsbury in 1947.

Cuts Grain Rates

GREAT FALLS, MONT.—A rate cut of about 8¢ cwt. for carloads of grain and by-products moved by the Montana Western Railroad Co. has been announced by officials of the firm. The new rate is expected to become effective Sept. 1. Montana Western, which covers 20 miles between Valier and Conrad, said the new rate will be in balance with other nearby lines, and will save grain shippers 4½¢ bu.

BINGMAN'S Animal Health Products

Less Mastitis — Higher Milk Production — More Profits

new approach to Herd Health

BINGMAN'S P-17

WHEN FED AS DIRECTED P-17

Aids in Control of MASTITIS

Aids in Reduction of SCOURS

Aids in Prevention or Treatment of FOOT ROT

Aids in Reduction of RESPIRATORY INFECTIONS

Results of tests using BINGMAN'S P-17

During this test period herds were fed BINGMAN'S P-17 at low level.*

	FIRST TEST			SECOND TEST (in 60 days*)			
Herds Tested	Quarters Tested	Clear	Infd.	Quarters Tested	Clear	Infd.	Percent Cleared
A.	32	21	11	28	28	0	100%
B.	95	76	19	112	108	4	79%
C.	80	34	46	68	55	13	72%
D.	68	52	16	68	64	4	78%
E.	74	38	36	79	72	7	81%
F.	83	69	14	78	76	2	85%
G.	60	34	26	44	39	5	81%
H.	36	27	9	28	26	2	77%
I.	16	11	5	16	15	1	80%
J.	32	16	16	28	25	3	81%
K.	48	41	7	60	59	1	86%
	624	419	205	609	567	42	79.5%

INDICATION OF SEVERITY OF INFECTION

Degree	1st Test	2nd Test
Slight	94	30
Infected (Mastitis)	66	9
Chronic (Mastitis)	45	3
Total	205	42

ASK ABOUT BINGMAN'S P-17 GUARANTEED FEEDING PROGRAM!

BINGMAN LABORATORIES, INC.

Subsidiary of S & H LABORATORIES, Inc., CALDWELL, OHIO

Note: Sales representatives wanted in many good areas. Write for details.

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ELIMINATE GUESSWORK IN MOLASSES MIXING!

Complete accuracy in Molasses mixing bag after bag!
One mixer For All Your Mixing Needs.
Mixes Both Dry and Molasses Feed.
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so you can use and profit from an

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this year . . . and for years to come

MAIL THIS COUPON TODAY FOR COMPLETE INFORMATION ABOUT ARID-AIRE'S Sensational NEW *LONG TERM* LEASE PLAN. With this plan it's easier and more profitable than ever to use an ARID-AIRE grain dryer. You don't tie up your working capital—you don't borrow against your regular line of credit. You get faster depreciation advantages PLUS the business building – profit making advantages of using the safe, modern, easy-to-use ARID-AIRE grain dryer!

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TAKE OUT DUST...PUT IN PROFITS!

Just Drop the Bale—
Shred Alfalfa FAST!

WINSTED
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BALE SHREDDER

Now! Shred alfalfa bales automatically with the Winsted Roto-Matic Bale Shredder. Shreds even the most compacted bales into just-right size . . . blows shredded alfalfa into your mill in controlled amounts.

Check these advantages:

- Fast . . . up to 6 tons per hour.
- Boosts your business, gives added customer service.
- Quick, simple installation. No "down" time.
- Reliable—made by the originators of bale shredding equipment.

Today, show extra profits . . . boost feed sales with alfalfa shredding service. It's a real money maker!

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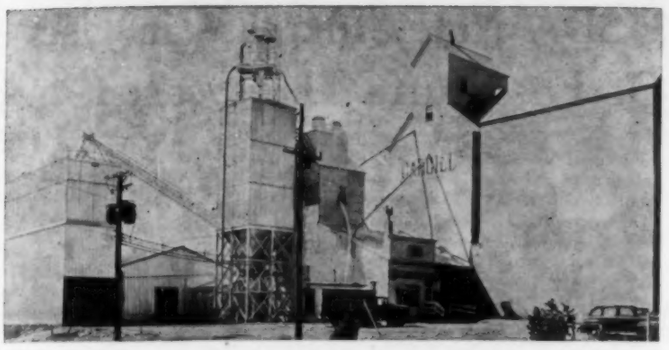


NEW PLANT—This recently-completed Nutrena mill at Lennox, S.D., has gone into full-time operation. It will service feeders and dealers in a 50-mile radius. Plant facilities include (left to right): Twenty 25-ton bulk feed storage tanks mounted over an enclosed 50-ft. truck scale; a 40x108 ft. sacked feeds warehouse, and soybean and raw material storage tanks. A Cargill grain elevator is at right.

Nutrena Feed Plant Begins Operation

LENNOX, S.D.—A newly-built Nutrena Feed plant at Lennox has gone into full-time operation, according to Walter Brigger, branch manager.

The mill, Nutrena's 15th in its 24-state marketing area, initially will turn out 40,000 tons of livestock and poultry formulas annually, Mr. Brigger said, but can as much as triple its output by adopting round-the-clock production schedules.

"We anticipate becoming a major buyer of locally raised grains and other commodities and hope to be an important animal feeds supplier to southeastern South Dakota farmers and ranchers," Mr. Brigger said. Distribution from Lennox will complement supplies from Nutrena's Minneapolis plant to the east and the Sioux City, Iowa, mill to the south, he said.

Nutrena's complete line of bulk and bagged feeds will be available at Lennox, Mr. Brigger said, with the largest production volume initially devoted to poultry, swine and cattle formulas.

Facilities include, in addition to standard mixing, crumblizing, pelleting and handling equipment, four 50-ton raw ingredient storage bins, a number of smaller ingredient bins, and twenty 25-ton finished feed bins located over a 50-ft. truck-loading scale. Two bulk trucks—one eight-ton capacity and the other 20-ton—have been assigned to handle the estimated 90% of production that will be devoted to bulk feeds.

"We've studied this area's potential and believe bulk will be an increasingly important factor in South Dakota farm animal production," Mr. Brigger said.

Other special facilities of the new plant include air conveyor for unloading rail cars and trucks and, to aid in quality control, an automatic scale-printer device that permanently records the amount of each ingredient mixed into each batch of feed.

Stockholders Vote Split In General Mills Stock

MINNEAPOLIS — Stockholders of General Mills, Inc., held their annual meeting at Minneapolis Aug. 18 and approved a plan to split the common stock shares of the company on a three-for-one basis.

The board of directors has announced its intention to make the first quarterly dividend payable Nov. 2, 1959, 30¢ a share, which would be equivalent to an annual rate of $1.20 a share on the split shares or $3.60 a share on the present shares. This amounts to a 20% dividend increase.

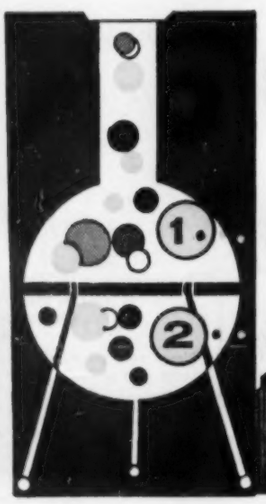
With the same vote, stockholders changed the value of the company's common stock from no par value to a par value of $3 a share. The number of authorized shares was increased from the present 3 million to 10 million. The company indicated that it has no immediate plans for issuance of the additional shares of common stock authorized.

Gerald S. Kennedy, chairman of the board, and Charles H. Bell, president, gave stockholders a summary of the fiscal year ended May 31, which set all-time company sales and profit records. Mr. Bell pointed out that last year's return on beginning net worth was 11.8%, as compared with 10.8 in 1957-58.

Looking ahead, Mr. Bell and Mr. Kennedy forecast a continuing need for substantial investments in new and modernized facilities. Present indications are that approximately $25 million will be needed in 1959-60.

Stockholders represented at the meeting re-elected the board of directors. The board then re-elected officers for the coming year.

OUR "FORMULA"...



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A QUALITY PRODUCT — from the cream of the soybean crop

SERVICE — from our mill to yours . . . As Scheduled!

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Here's a formula that works . . . For You!

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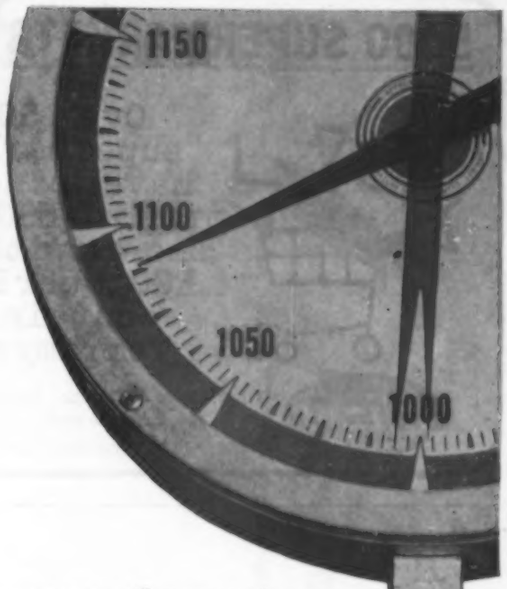
INCREASE GAINS

...use higher Dicalcium Phosphate levels



FEEDING TRIALS PROVE BENEFITS

Rations supplemented with higher dicalcium phosphate levels produced faster liveweight gains and more efficient feed utilization in a series of cattle feeding tests at State Agricultural Experiment Stations.

IOWA STATE[1] Tests conducted by Iowa State College researchers indicate cattle receiving high dicalcium phosphate rations graded higher at slaughter and returned greater margins over feed costs. The Iowa State report concludes . . . in some cases a higher level of total ration phosphorus, possibly as high as 0.3 percent, may well be needed.

PURDUE[2] According to a study conducted by Purdue University researchers, raising the phosphorus level in a corn-soy ration from 0.30 to 0.45 percent improved rate of gain 29% and feed efficiency 6.6% when fed to growing swine on ladino pasture. A further increase in phosphorus to 0.60% improved feed efficiency 5.7%, but failed to stimulate gains further. Several pigs on the corn-soy basal ration exhibited borderline phosphorus deficiency symptoms.

SOUTH CAROLINA[3] An animal deficient in phosphorus from either hereditary genetic defects, or because of prior consumption of a low phosphorus ration may bloat, regardless of the level of nutrition in the feed crop. Therefore, a critical phosphorus deficiency in ruminants should be corrected through feeding of dicalcium phosphate or other mineral phosphates or by feeding high phosphorus concentrated feeds prior to being placed on luscious legume pastures.

TEXAS[4] In feeding trials on the King Ranch in Texas, cows fed supplemental phosphorus weaned 39% more calves, averaging 50 pounds more weight per calf. In addition, feed lot operators in the Southwest have discovered that higher phosphorus levels result in faster gains.

Coronet DIKAL is all biologically usable phosphorus, available to both plant (rumen bacterial micro-organisms) and animal life and highly palatable to both poultry and livestock. Coronet Granular DIKAL is easy to handle, flows freely, disperses evenly and eliminates annoying dust. From Texas City, the only feed grade dicalcium production point west of the Mississippi River, you receive faster, more dependable service.

1. Different Kinds and Amounts of Phosphorus in Fattening Cattle Rations—Agricultural Extension Service, A. H. Leaflet 209; Wise Burroughs, Arthur Raun, Edmund Cheng, C. C. Culbertson, Iowa State College.
2. Phosphorus and Protein Levels for Growing-Finishing Swine on Legume Pasture—C. E. Jordan, J. H. Conrad, M. P. Plumlee; W. M. Beeson, A. H. 215, Purdue University.
3. Relation of Phosphorus Deficiency to Acute Bloat in Ruminants—H. P. Cooper, 69th Annual Report, South Carolina Agricultural Experiment Station, Clemson, S. C., May, 1957.
4. Methods of Supplying Phosphorus to Range Cattle in South Texas—Texas Agricultural Experiment Station, Bulletin 773; E. B. Reynolds, J. M. Jones, H. H. Jones, J. F. Fudge and R .J. Kleberg, Jr.

Use more Coronet Granular DIKAL in your feeds

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5000 SUPERMARKETS

Over 5000 supermarkets have joined to promote EGGtober. Tie-in with your EGGtober Feeds containing Terramycin®.

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NUTRITION

(Continued from page 16)

tained whereas in other cases the growth response has been negative. Similar studies were carried out by Dr. A. A. Camp near Gonzales, Texas.

Reports such as those outlined above leave the feed nutritionist in somewhat of a quandary. Should antibiotics be used continuously, intermittently or therapeutically? The writer is not suggesting that antibiotics be eliminated from feed formulas. It is believed that the stress or stresses experienced under commercial broiler production conditions warrant the use of an antibotic or combination of antibiotics in practical feed formulas. One might consider changing from one antibiotic to another and particularly to using combinations of two or more antibiotics under commercial broiler conditions.

THE EFFECT OF VARIOUS TREATMENTS ON INGREDIENTS AND TOTAL FORMULAS IN IMPROVING GROWTH AND FEED UTILIZATION — The first of these papers was from Dr. Stephenson's laboratory, University of Arkansas, and was concerned with the "Pelleting Response in Broiler Feeding." Dr. Stephenson has been studying this problem for quite some time, in an effort to determine if the improved growth and feed efficiency due to pelleting, may be due to an effect produced on the feed by the process of pelleting. It was concluded from this paper that the results to date indicate that when pellets or reground pellets are fed equivalent to mash intake, there was no growth response produced by pelleting the formula. The free choice feeding of mash and pellets produced birds which grew faster when fed the pellets but the daily feed intake of these birds was also greater.

The added growth and feed efficiency due to pelleting appeared to be due entirely to an increase in feed consumption above the maintenance requirement. Thus, from the results of these investigations, it would appear that the pelleting does not produce any significant change in the feed formula. It is the opinion of the writer that most of the favorable results produced by pellets in comparison with mash are due to the fact that the improved feed conversion may be traceable in large part to decreased feed wastage with pellet formulas and, also as pointed out in the report from Dr. Stephenson's laboratory, that the birds fed pellets consumed more feed and the increase in growth is due to such increased feed consumption above the maintenance requirement.

The next study was concerned with the "Feeding of Rye to Growing Chickens" from the Canada Department of Agriculture, Nappan, N.S., Canada. Dr. R. M. Smith and Dr. T. M. MacIntyre carried out this series of investigations.

Preliminary studies had indicated that the feeding value of rye might be improved by pelleting. These workers carried out a series of investigations to fully evaluate the position of rye as a poultry feed.

Broilers fed a mash formula containing from 15 to 35% rye suffered a growth depression and a loss in feed efficiency when compared to that of birds fed a wheat mash diet. Pelleting the rye formulas overcame the deleterious effect to a very large extent, although the response produced by pelleting the rye formulas was not sufficient to bring the feeding values of such formulas up to that of a wheat pelleted ration.

Adding Enzymes

Dr. J. C. Fritz, Dawe's Laboratories, Inc., Chicago, studied the effect of adding enzymes to diets containing from 20 to 64% wheat middlings and to others containing 40% ground oats.

In most instances, the feeding value

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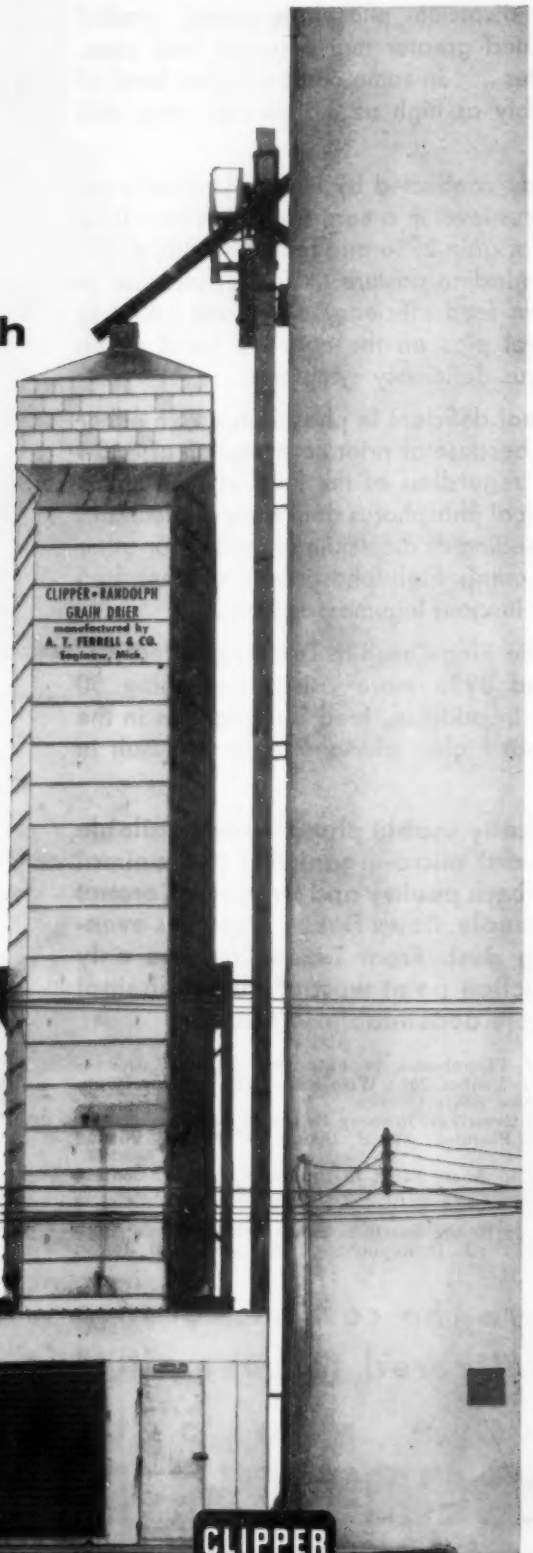

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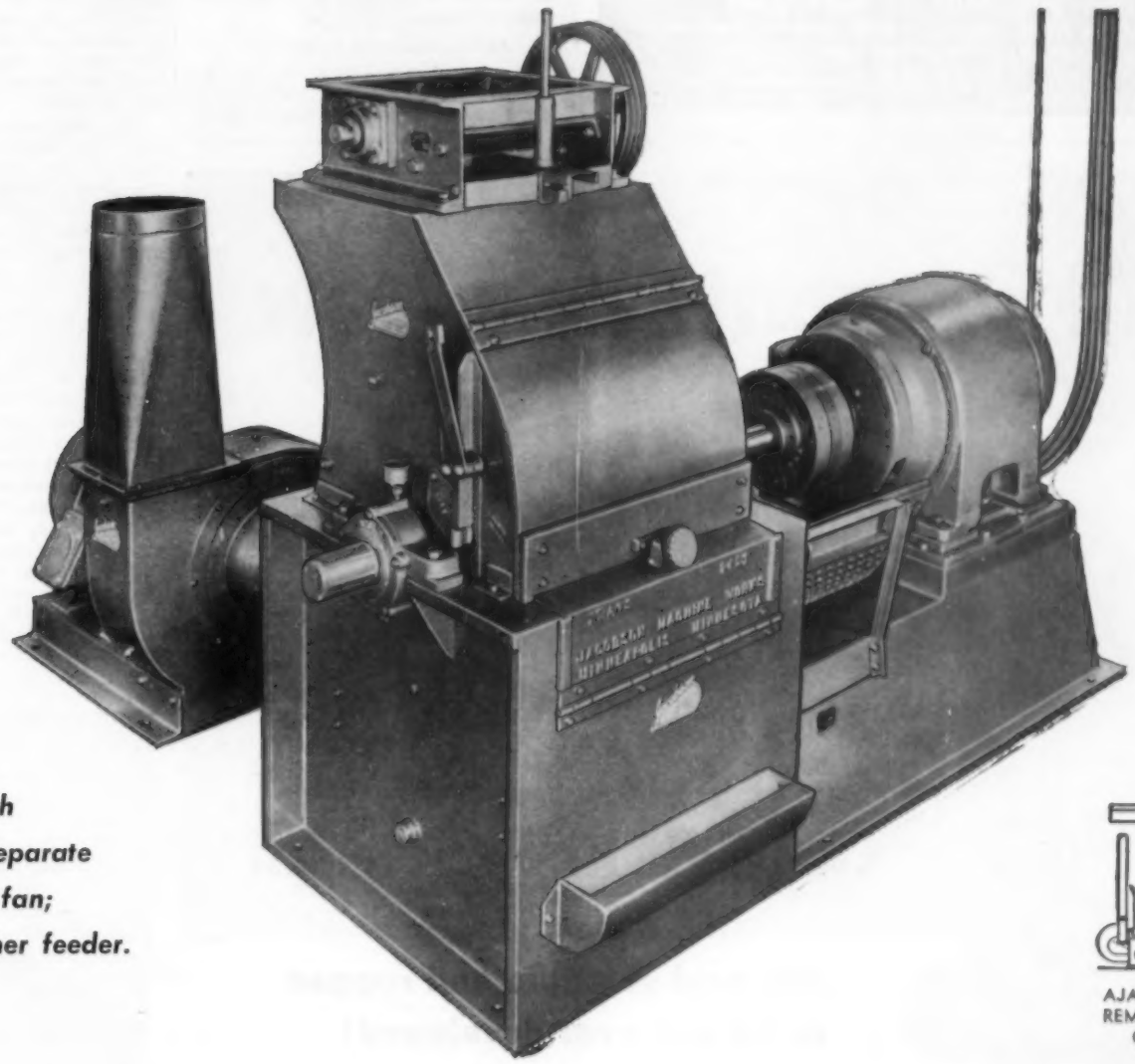

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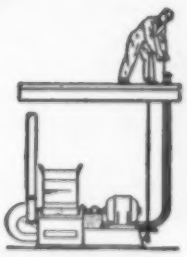

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of wheat middlings was improved by adding various enzymes to the formula. Feed utilization was variable and did not always parallel the growth response. The addition of a fungal amylase to a 40% oat diet was without effect on chick growth and feed utilization. A bacterial amylase and one cellulase improved the performance on the 40% oat diet for chicks.

Growth and feed efficiency of turkey poults was improved by adding fungal amylase to a 45% oats formula. In no instance did the addition of enzymes make a high fiber diet equivalent to a corn diet. Thus, it is apparent from this paper that the enzymes which have been developed to date as feed additives do not have any effect on the fiber in a chick or poult formula.

Adding Enzymes to Barleys

Results presented by O. A. Laerdal, University of Wisconsin, were quite interesting. These studies were carried out to determine the effect of adding various enzymes to barleys from different sources which had been grown under different conditions and under different environments.

It has been shown repeatedly that barleys from different sources support different rates of growth. Data were presented to show that barley from the Midwest was not improved by the addition of malt or enzymes to the formula. Barleys from the West Coast which produced inferior growth were improved by adding enzymes to formulas containing such West Coast barleys. The basal diet contained 65% barley in all cases. When Midwest barley was autoclaved, resulting growth was poorer, equivalent to that produced with West Coast barleys, but could be restored to normal by the addition of malt. The growth response produced by malt was partially lost by autoclaving the malt.

Data were also presented to show that 10% malt was generally most effective for improving growth and the growth obtained was equivalent to that produced by adding commercial enzyme preparations to the formulas. Simultaneous supplementation with both malt and enzymes produced no better results than either alone. "Sticky droppings" observed when feeding West Coast barleys were almost completely eliminated by the addition of Clarase to the diet but not by the addition of malt.

Data presented showed that it was not possible to predict from the color of the barley whether or not a growth response would be obtained from water treatment.

From these results it is apparent that enzyme supplementation formulas containing West Coast barleys may be improved by adding enzymes to the formula, whereas barleys grown in the Midwest may not be

(Turn to NUTRITION page 87)

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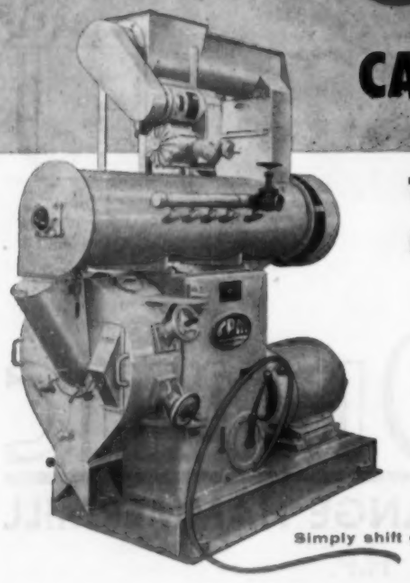
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ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

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WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.

PNEUMATIC "FEED-PUMP" UNITS, WILL Pump or Air-Convey Pellets & any Free Flowing Material up to 5000 ft. A Package Unit or "Bld-it-yr-self." Nolder Co., Box 14, Corona Del Mar, Calif.

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SALESMAN TO COVER OHIO, INDIANA, Kentucky, West Virginia territory—for a leading mineral-vitamin supplement manufacturer. Prefer man with knowledge of feeds and feeding and familiar with feed manufacturing. Excellent opportunity for right man. Reply to: Vit-A-Way, Inc., P.O. Box 4311, Fort Worth, Texas.

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DISTRICT SALES MANAGERS-SALESMEN —Manufacturer animal health products, antibiotic vitamin mineral supplements. Territories open Indiana, Illinois, Iowa, Wisconsin, Michigan, Pennsylvania, New York, other states. Expenses, salary, commission. Give details, experience, references. Address Ad No. 4510, Feedstuffs, Minneapolis 40, Minn.

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Bemis Bag Announces 3 Personnel Changes

ST. LOUIS — Three personnel changes within the eastern operations of the Bemis Bag Co., were announced recently by F. G. Bemis, president. R. V. Scott, director of eastern operations and company director, New York, will transfer to St. Louis as assistant director of sales for the company.

R. V. Scott

A. F. G. Raikes, manager, New York general sales division, will assume Mr. Scott's duties as director of eastern operations, and will be succeeded by J. B. Goolsby, area sales manager at the Brooklyn sales division.

Mr. Scott, who joined Bemis at its Kansas City plant in 1931 as an accountant, has served as director of eastern operations since 1957. He previously served six years as manager of the company's Chicago general sales division.

Mr. Raikes began as a sales representative with the company, joining the Kansas City sales division in 1938. The following year he was transferred to St. Louis as a member of the trade extension department (now the company's general sales department). In 1943, he was named assistant to the director of sales and five years later, assistant director of sales. He transferred to New York in 1953 as manager, New York general sales division.

Mr. Goolsby's 22 years of service with Bemis has been in the Brooklyn sales division. In 1953, he was named an area sales manager and placed in charge of accounts in New England, Long Island and portions of Manhattan.

NEW MEMBERS

MEMPHIS, TENN. — Three firms have become new members of the National Cottonseed Products Assn., Inc., according to headquarters here. They are Stevens Industries, Inc., of Dawson, Ga.; Burma Oil Mills, Ltd., of Karachi, Pakistan; and Harold Holt Co. of Memphis.

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NUTRITION

(Continued from page 84)

improved to any appreciable extent by such additions.

K. C. Leong, Washington State College, presented results which clearly showed that an improvement in growth and feed utilization of turkey poults could be obtained by the addition of a crystalline proteolytic enzyme to a diet containing barley.

The enzyme was fed at a level of 5 mg. per pound of diet. In a second experiment similar responses were obtained by using as little as two mg. per pound of the crystalline enzyme. The growth response obtained with the crystalline enzyme was approximately one half that which resulted with a crude fungal enzyme supplement at a level of 2 gm. per pound.

These workers concluded that more than one enzyme is involved in the improved utilization of cereal grains when such enzymes are added to formulas for growing chickens and turkeys.

Grain Treatments

O. L. Adams, Ohio Agricultural Experiment Station, studied the "Effect of Physical and Chemical Treatment of Grains on Growth and Feed Utilization by the Chick."

These workers soaked corn and barley with water and noted that such treatment improved the nutritional value for growing chicks. Soaking the grains in dilute acid produced the same effect as soaking in water alone, but soaking in dilute alkali had no effect. The enzyme supplementation of the diet failed to improve growth or feed conversion.

These data appeared to indicate that the fermentation after associated with water soaking is not essential to production of a growth response, since fermentation was not observed when acid solutions were used.

Another report from Washington State College presented by Dr. J. McGinnis showed that an irreversible heat-stable change occurred in barley which is water treated prior to being incorporated into a poultry feed formula.

It was concluded that the improvement brought about by water treatment was not simply a case of the deposition of enzymes by microorganisms which later acted in the intestinal tract of the chick. It was also noted by these workers that inoculation of sterilized barley with a variety of B subtitis or an unidentified bacillus produced an improvement in the nutritional value of the grain.

BLOOD MEAL AS A SOURCE OF PROTEIN IN TURKEY STARTING FORMULAS—This paper was presented by Dr. W. C. Lockhart, North Dakota Agricultural Experiment Station, Fargo.

Dr. Lockhart conducted five trials of two to three weeks duration and used a corn-soybean oil meal basal diet which contained 3% fish meal as the control. Blood meal and other animal protein supplements were included as supplements to the basal diet at the expense of an equal amount of soybean protein.

A number of interesting points were brought out during this presentation. First, when an additional supplement of fish meal along with blood meal and meat meal were used to make up a total of 6%, this supplementation failed to improve growth or feed conversion. Furthermore, it was quite clearly demonstrated that the feed conversion was decreased when the animal protein supplement was included in the formula. Freeze-dried blood meal was superior in terms of feed efficiency to vat dried blood and produced results that were approximately equivalent to those of the protein from soybean oil meal. Growth, however, was only slightly better than with vat dried blood meal. Supplementation of the blood meal diets with isoleucine proved to be ineffective in overcoming the poor results experienced when blood meal was used in the formulations. The use of fish meal at a level of 12% did not overcome the depression in feed efficiency or growth observed when the diet contained 5% blood meal.

These data were quite convincing and in the opinion of the writer showed that it is not necessary to supplement turkey starting formulas with animal protein sources in order to attain maximum results so long as sufficient amounts of unknown growth factor supplements are used in the formulations. These supplements include sources of the whey factor and the fish factor. However, fermentation residues may be used as the supplements containing the fish factor. Condensed fish solubles is also an excellent source of fish factor.

CHICK PEAS (CICER ARIETINUM L.) AS A SOURCE OF PROTEIN AND ENERGY IN CHICK DIETS—This very interesting paper was presented by Dr. J. A. Pino, Rockefeller Foundation, Mexico City, Mexico. Chick peas could very well be used on a commercial basis in the formulation of feeds in Mexico to supply lysine. The approximate composition of the chick peas is as follows: Moisture 7.7-13.17%, protein

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IRRADIATED DRY YEAST
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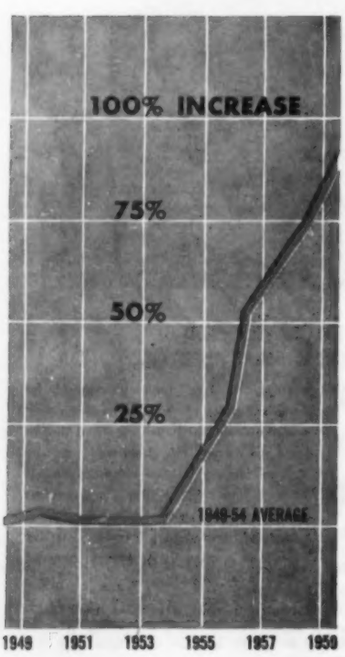

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17.7-19.4%, fat 4.14-7%, crude fiber 3.96-7.95%, nitrogen free extract (NFE) 45.7-53%, ash 2.03-5.14%, calcium .20%, phosphorus .33%.

Dr. Pino established in these investigations that chick peas did not require processing to improve the nutritive value in any way.

The chick peas contain .23% methionine, 1.32% lysine, and .19% cystine. Dr. Pino used chick peas at levels as high as 95% of the total feed with satisfactory results. The chick peas contain hydroxylated carotenes and therefore are excellent as pigmentation sources.

In commercial feed formulations, it is estimated that the chick peas may be used at levels from 15 to 31% to supplement the lysine deficient protein supplements — sesame meal and cottonseed meal. Best results were obtained when the peas were used in combination with sesame meal.

Dr. Pino pointed out that the chick peas must be coarse ground for palatability and to prevent beak necrosis.

This is a very significant paper and may be used in formulations by feed manufacturers in Mexico. Likewise it is called to the attention of firms in this country that have branches in Mexico as well as vitamin suppliers that carry out feed formulations for customers in that area.

EXPERIMENTS WITH RAW FIELD PEAS (PISUM SATIVUM)— Dr. E. W. Kienholz, State College of Washington, reported on experiments with chicks conducted to study the growth depressing properties of raw field peas. A diet was formulated to contain 93.8% field peas, 2% fat, vitamins and minerals. The methionine deficiency of diets containing the peas was corrected by adding .6% of this amino acid to the formula. Autoclaving the mature ground peas for 30 to 120 minutes at 10 lb. steam pressure improved chick growth about 60% over that of chicks fed diets containing the raw peas. Addition of water to the peas prior to autoclaving was not essential for improvement.

The addition of 50-280 ppm. zinc to diets containing raw peas significantly improved chick growth. However, the growth of chicks fed diets containing autoclaved peas was not improved by supplemental zinc. Supplementation with zinc did not produce as great a response as did autoclaving.

It was concluded by Dr. Kienholz that raw peas contain a form of zinc not available to the chick during normal digestive processes but which was made available by autoclaving since birds fed autoclaved peas excreted less than one-half as much zinc as did birds fed the raw peas. In addition, peas contain a growth depressing factor or factors which are inactivated by autoclaving. Fractionation experiments showed that the growth depressing properties of the peas were present in the alkali-soluble fraction of raw peas.

Pacific Molasses Names Northwestern Manager

SAN FRANCISCO—Jesse R. M. Jones, Jr., has been appointed northwestern manager of the Pacific Molasses Co., according to a recent announcement from the company headquarters in San Francisco.

Mr. Jones will supervise sales and distribution of feeding cane molasses for the company in Oregon, Washington, Idaho and Montana, from the company's distribution stations at Seattle and Tacoma, Wash., and the Portland, Ore., station.

Ryan Moves Office

MINNEAPOLIS—The office of Ryan Feed & Grain Co., Minneapolis, has been moved from 3033 Excelsior Blvd. to 3954 Wooddale Ave., Minneapolis 16, according to an announcement by Don Ryan.

Specialized Sessions Set for 1959 Feed Production School

KANSAS CITY — Specialized sessions will be a feature of the Feed Production School again this year.

The school will be held Sept. 23-25 at the Hotel Continental in Kansas City, with the specialized sessions taking place on Friday, Sept. 25. These discussion sessions will deal with various aspects of feed production.

Max Cooley

Maxwell L. Cooley, technical director, animal nutrition division, Hoffman-Taff Inc., Springfield, Mo., is chairman of the specialized sessions.

"The specialized sessions," he explained, "provide an opportunity for enrollees of the school to attend what might be termed a 'class room' type of meeting. The main discussions in each session are carried on by a panel, the members of which have been selected as to ability and experience. After the formal presentations, a question and answer period takes over. The enrollees are invited to participate in this to the fullest extent.

"There are six specialized sessions on the program. The panels for each session will give their presentations four times during the day (Friday, Sept. 25). All sessions run concurrently, and enrollees will be able to attend four out of the six sessions.

Following are the subjects and panel chairmen:

Liquid Handling—Panel chairman, Silas R. Renaudette, Wirthmore Feeds, Inc., Waltham, Mass.

Cooling and Drying Pellets—Chairman, Charles W. Johnson, Sprout, Waldron & Co., Minneapolis.

Premixing—Chairman, W. L. Brickson, Specifide, Inc., Indianapolis, Ind.

Quality Control—Chairman, Eugene H. Spitzer, Murphy Products Co., Burlington, Wis.

Handling and Conveying Pellets—Chairman, Gordon McKinney, Honeggers' & Co., Inc., Fairbury, Ill.

Grinding and Mixing Roughages—Chairman, Dr. O. Burr Ross, department of animal science, University of Illinois, Urbana.

The main theme of the three-day Feed Production School is "Pelleting." Students are encouraged to enroll early. Inquiries are to be sent to Feed Production School, Inc., 20 West 9th St. Building, Kansas City 5, Mo.

Cows Fed Record Grain, Concentrate

WASHINGTON — Continued feeding to milk cows of record quantities of grain and concentrates by U.S. Department of Agriculture crop reporters was noted in a current milk production report. USDA said their feeding rates on Aug. 1 were especially high for this time of year.

An average of 5.44 lb. per milk cow was fed Aug. 1 compared with the previous high of 5.18 lb. fed on that date last year and the 1948-57 Aug. 1 average of 4.16 lb.

The current rate per milk cow declined 6% from June 1, which was one percentage point less than the usual seasonal decrease from June 1 to Aug. 1. Feeding rates reached new highs for Aug. 1 in all regions except the West, where it equaled the Aug. 1 record of the two previous years.

For the entire country, a record low of 24.1% of the crop reporters fed no grain to their milk cows Aug. 1, compared with 24.9% a year earlier and the Aug. 1 average of 28.1%.

KENTUCKY

(Continued from page 1)

has produced such a furor in the trade recently, was covered by Russell C. White, chief inspector, Cincinnati District, Food & Drug Administration. He was filling in for Samuel Alfend, chief of the Cincinnati district. The presentation consisted of a review of the problems arising with the application of the Delaney Amendment to animal feeds, and recognized that much remains to be settled.

Business Relations

The program was led off the morning of Aug. 17 by Henry Ward of the Louisville Chamber of Commerce, who suggested that businessmen should pay attention to their relations, meaning relations with government, their customers and each other. Special attention should be paid to the field of government, he said, particularly in regard to labor legislation and regulations which affect business.

In summarizing his remarks on the dairy business as related to integration, Dr. Don R. Jacobson, associate professor in dairy husbandry, University of Kentucky, listed the following points:

1. Dairying is big business.
2. In the future the production of milk will be accomplished on fewer but larger, more efficient units whether we have more integration or not.
3. The price of milk will tend to equalize across the country. For some time yet, the business will remain very competitive. More and more people want to get into the dairy business—they like the way of life—yet the economics would dictate that there will be fewer instead of more. It's the over-supply and the relatively inelastic demand for milk that will tend to keep the business fiercely competitive.
4. Possibly the only answer is a self-help program, or integration to the point where production or supply can be controlled and a reasonable price for milk will be bargained for. Government programs are not doing the job.
5. Integration in the dairy business has a big foot in the door already. I would expect it to expand. The feed manufacturer probably will not integrate into milk production very much in the near future.
6. When dairying does become more integrated, the farmers themselves probably will control it.

Contract Hog Production

During his paper on "Producing Contract Hogs in Kentucky and the South," Dr. C. E. Barnhart, University of Kentucky, indicated that he does not believe that vertical integration, as we now know it, offers serious threats to the swine industry.

"If the parties involved," he said, "will keep their programs on a sound and fair basis, and do not try to reduce the grower to the status of a low-paid caretaker, as has been the case in many instances in the broiler industry, contract growing of hogs can be beneficial to the industry. It offers opportunity to many good hog men to increase the size of their business, improve their product and get a better market than they might otherwise get. It also offers him advice and technical aid that would not be otherwise available to him.

"There is one big difference between the hog business and the poultry industry—you cannot buy pigs in a box yet. The good brood sow herdsman still is a very important ingredient in the complete formula of producing pork. This 'know how' will have to be recognized.

"Don't be surprised to see large commercial operations growing out of some of these contract programs. Such trends are now developing in the South where contract hog production is flourishing."

Oakley Ray Speaks

Oakley M. Ray, director of market research for the American Feed Manufacturers Assn., Chicago, commented on the market situation for several commodities. Too much pork is helping depress the broiler market, he believes; hogs have not yet reached their peak in numbers cycle, and prices of pork have not bottomed out yet. Increased lay on the part of layers will tend to offset reduced numbers. He does not foresee that the supply of eggs can be greatly increased. Producers must adjust to the lower level of egg consumption, he said, with population increases permitting some expansion.

Mr. Ray gave a long-term projection of the increased production needs of livestock and poultry by 1975 (as reported by the U.S. Department of Agriculture), with needed increases expressed in percentages, as follows: Eggs, 36%; dairy products, 43%; meat animals, 47%; poultry meat, 56%, and all livestock and poultry, 40%.

Integration Analysis

During an analysis of integration in the livestock and feed industry, presented by S. Q. Allen, extension specialist in agricultural economics, University of Kentucky, the impact of this integration on various segments of the economy was examined.

The farmer, he said, is under pressure to specialize and expand capital investment. He thinks the period of negotiation between the farmer and the integrator is approaching, and the farmer is improving his bargaining position.

Political implications are important, he says. Politicians find it popular to clamor for the family farm. He foresees that the government will aid in forming bargaining groups of farmers.

Likely regulations mentioned by the speaker were: Expansion of production controls and price supports; marketing agreements or orders; tax discrimination against large operators, and expansion of laws regulating monopoly.

Marketing systems are to be affected. Terminal markets might be by-passed. Prices can be determined in the field. Feed volume is to increase, especially for the integrators. Small independent dealers will be under pressure and have a difficult time. Larger, integrated dealers can expand, the economist said.

Greater integration can be expected, Mr. Allen concluded, with resulting greater production and lower prices; an increased squeeze on the small, inefficient farmer; an increase in government regulations to control bigness; short-run increase in profits to the integrator and the integrated producer, but, in the long run, the main beneficiary will be the consumer who will get higher quality products at lower prices.

The meeting closed Aug. 18 with an evening banquet. The ladies were entertained at the Big Spring Country Club with a luncheon and card party. They were addressed by Mrs. Florence French, Chicago, free lance home economist, who talked on some of the techniques employed in professional food photography. An afternoon of relaxation at golf and swimming was spent by the men.

Columbus Feed Club

WORTHINGTON, OHIO — The ninth annual Fish Fry and Barbecue will be held by the Columbus Feed Club at WRFD picnic park Sept. 4. Eugene Thomas and "Russ" Younce are in charge of the program.

MANAGER HONORED

CINCINNATI—Donald B. Speake, manager of Cooperative Mills, Inc., was honored recently by office personnel on the 25th anniversary of his association with the firm. He joined the firm in 1934 in Baltimore, Md., and in 1949 was transferred to Cincinnati as assistant manager. He was promoted to his present position in 1957.

CAPITAL COMMENT

(Continued from page 4)

though the Senate has sent to the floor a bill which does not contain a new emphasis on an oil donation program, that USDA, in its Foreign Agricultural Service, will use every device at hand to move edible fats into world markets. Hog prices are slumping, and lard may break the market. Lard supplies will be excessive, and Public Law 480 programs will be the fulcrum on which the oil exports lever may be balanced.

The instrument which can make the soybean market for this crop year is the donation program for edible fats under provisions of Public Law 480. USDA will push this program and the donation program to the limit.

No matter what this Congress may do on the oil donation program, which now seems probable for Senate floor consideration under the initiative of Sen. Humphrey, edible fats will be on the donation list.

And the edible oil donation list can amount to nearly 500 million pounds, which would confirm the previous forecast of this reporter that soybeans for next March-May now look cheap.

TURKEYS

(Continued from page 1)

ing an over-all bail out for the turkey industry for its whole year.

The USDA program is designed in some respects to cut back the storage deal which would accumulate to the disadvantage of the later holiday marketing.

This USDA action indicates that the turkey industry is not out of the difficult financial woods by any means.

Chickens

The USDA move in the turkey industry is in no way connected with conditions in the broiler industry, wherein USDA officials noted the Feedstuffs report of two weeks ago to the effect that "Period of 'Blood-Letting' in Broiler Industry Seen."

This comment evoked a statement from a USDA official that the egg deal also was still "rough." It recovered from its sorry condition of early summer, but again it has slumped. USDA officials believe that there will be further recovery, but not so substantial that it will make the egg deal the great possibility featured by the fiction entitled "The Egg and I."

Turkey Buying

In announcing the turkey program, USDA noted that it bought frozen turkeys for the school lunch program during the fall of 1958, and the product was well received by school children and school lunch supervisors.

Frozen turkeys must be prepared in accordance with specifications to be released later. Initial offers are due Sept. 8.

Offers will be considered only from vendors operating under federal inspection in order that turkeys purchased may be shipped in interstate commerce. Offers will be accepted for turkeys weighing from 12-24 lb., ready-to-cook weights.

Colonial Poultry Farms Appoints Don Butler

PLEASANT HILL, MO.—Colonial Poultry Farms, Inc., Pleasant Hill, Mo., has appointed Don Butler, vice president of Creative Service Associates, Dayton, Ohio, to direct a long-range marketing program.

M. R. Irwin, president of Colonial Poultry Farms, said Mr. Butler has been engaged to prepare a marketing program "to help establish True-Lines sales leadership in the poultry industry" for Colonial. True-Lines is a new-type layer developed by Colonial Poultry Farms.

Colonial has engaged Mr. Butler to complete a five-year program, which will be started immediately with sales clinics for key company personnel, Mr. Irwin said. Mr. Butler is one of the organizers and a vice president of the new marketing and sales consulting firm in Dayton.

TOP OF THE HOPPER

(Continued from page 1)

turkey industry, according to Turkey World. A large number of these corporations have been organized the past few years, the publication says. "They have come at a time of low prices, and many of the well-organized and well-managed operations have started to pay a fair return to the investors.

"There is no doubt that many more of these farms with businessmen as stock owners will be started in the future. And some of them will result in dismal failures. However, there is an indication that feed companies want to shift the capital risk that many of them have had to assume to sell feed. Incorporated farms will help bring in the outside financing needed to make such a shift."

The farms, Turkey World notes, are not necessarily "big business," as many of them are operating successfully growing in the range of 50,000 to 80,000 birds annually.

CONTRASTS: Watching some 29¢ lb. broilers turning on the spit the other afternoon we were reminded of a conversation of a few months back with an Australian visitor concerning beef and chicken prices, here and "down under." Stephen M. Kimpton of W. R. Kimpton & Sons, Melbourne feed manufacturer and flour miller, stopped in on his way across country. Beef is more plentiful in that land of vast grazing areas, and steak can be had for 50¢ lb. —or up to a top of 80¢ for eye filet. (Mrs. Kimpton noted while in New York a $2.40 lb. price tag on what appeared to be the equivalent of a 70¢ cut in Melbourne.) Broilers, on the other hand, bring 85¢ to $1.15 lb. in Australia.

Broiler growing, Mr. Kimpton reported, isn't as specialized, large-scale operation there as it is here. It takes eight or nine weeks to grow out a 2 lb. bird, and conversions average about 3.8 lb. of feed per pound of broiler meat. One limiting factor, too, is lack of some of the faster-growing strains of birds developed in the U.S. Restrictions intended to guard against importation of disease keep new types of birds out of Australia.

HERE'S ANOTHER POULTRY item, Commonwealth division also, but closer in. A British West Indies businessman recently wrote Feedstuffs for help in locating literature on poultry nutrition, management and disease and "any other information that you think will be of interest to us." His letterhead includes the words "Super Mart," and a highly-interesting diversification plan seems to be on his mind. The firm also handles frozen foods, cinema tickets and projector carbon. He also is looking for information on swine production.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Denver: Demand fair; trend steady; supply ample; 2,250 A, 300 D 22¢ lb., f.o.b. Denver.

Boston: Demand and supply steady; 600 D, 1,500 A 17½¢; 400 D, 3,000 A 20¢; 300 D, 3,000 A 19½¢; 300 D, 2,250 A 18¢; 300 D, 1,500 A 16½¢; 300 D, 750 A 14¾¢; 75 D, 750 A 14½¢.

Minneapolis: Demand fair; supply ample; 10,000 A 34½¢ lb.; 300 D, 2,250 A 19¢ lb.; 300 D, 1,500 A 17½¢ lb.; 300 D, 750 A 16¢ lb.

Chicago: Demand quiet; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

ALFALFA MEAL

Denver: Demand good; trend strong; supply ample; dehydrated $48, Denver.

Philadelphia: Demand and supply fair; 17% dehydrated $63.

Portland: Demand slow; trend lower; supply ample; suncured, 15% $39; dehydrated $63.40.

Boston: Demand fair; supply good; dehydrated, 17% $64; suncured, 13% $48.

Omaha: Demand slow; trend steady; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $41; sacked meal $45, Omaha basis.

New Orleans: Demand steady; trend firm; supply adequate; vitamin A, 17% $58@59; pellets $53@54.

Cincinnati: Demand poor; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $59.50@60.50.

St. Louis: Demand slow; trend lower; supply light; suncured, 13% fine $44.50; dehydrated, 17%, 100,000 A, demand fair, trend steady, supply ample $52.

Memphis: Demand poor; trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $55.

Kansas City: Demand slow; trend steady; supply adequate for demand, although considerable material is going into store, production pace is good in most areas, but there are exceptions; dehydrated alfalfa with 17% protein and 100,000 units vitamin A guaranteed on arrival: regular meal $45, sacked; reground pellets $47, sacked; pellets $41@42, bulk; non-guaranteed A meal with 15% protein $40@41, sacked; 18% protein 125,000 A meal $3 over 17% 100,000; 20% protein, 150,000 A meal $10 over 17% 100,000; suncured meal demand is very slow with prices unchanged and supplies limited. No. 1 fine ground $40@41, No. 1 ¼-in. $38@39, No. 2 ¼-in. $35@36, sacked.

Los Angeles: Demand moderate; trend stronger; supply light; dehydrated meal, 17% protein, 100,000 A $51, bulk; dehydrated pellet meal, 17% protein, 100,000 A $53, bulk; suncured meal, 15% protein $44@45, bulk; suncured crumbles, 15% protein $46@47, bulk.

Buffalo: Demand fair; trend steady; supply fair; $64, Boston.

Ft. Worth: Demand fair to good; supply adequate; dehydrated, 17%, 100,000 A $57.80 rail, truck $56; suncured, 13%, ¼-in. grind No. 1 $43, truck.

Chicago: Demand fair; trend steady; supply adequate; carlots, 17% protein, dehydrated, with 100,000 units vitamin A guaranteed $53.50.

Minneapolis: Demand good; supply adequate; trend steady; 17% dehydrated, 100,000 units vitamin A, reground pellets $48, bulk, Minneapolis; oiled reground pellets $50, bulk; sacks $4 more.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $45, delivered, truck loads; 136,000 A unit dehydrated $68, delivered, truck loads.

ANIMAL FAT (STABILIZED)

Louisville: Demand slow; trend steady; supply good; bleachable white 6¢ lb.; white tallow 6⅛¢ lb.; yellow grease 5⅝¢ lb.

Boston: Demand steady; supply adequate; tallow 6¾¢ lb.; yellow grease 5¾¢ lb.

New Orleans: Demand fair; trend steady; supply adequate; 6½@7¢ lb., tank cars.

Kansas City: Demand slow; trend steady; supply ample; 6¼¢ gal., tank car.

San Francisco: Demand fair; supply ample; bleachable fancy 6⅝¢ lb.; yellow grease 5¼¢ lb.

Ft. Worth: Demand fair; supply ample; prime tallow, tank cars 6¢ lb.; drums 6½¢ lb., f.o.b. north Texas packing plants with returnable drums.

Chicago: Demand quiet; trend steady; supply fair; bleachable fancy tallow, cwt., tank truck or carlots $6.75; yellow grease $6.37½.

Atlanta: Demand fair; trend weak; supply good; 6¢ lb., bulk, delivered Georgia and Alabama feed mills.

St. Paul: Demand fair; supply ample; trend steady; bleachable fancy tallow 6¼¢ lb., f.o.b. producer's plant.

BARLEY FEED

Boston: Demand slow; supply adequate; $47.

Ogden: Supply normal; rolled $46@51; whole $38@43.

Portland: Demand good; supply ample; trend unchanged; rolled $56; ground $54.

Philadelphia: Demand slow; supply fair; $47.

New Orleans: Demand slow; trend unchanged; supply ample; $55@56.

Baltimore: Demand and supply fair; trend steady; carlots $47.50.

San Francisco: Demand fair; supply ample; rolled $56.50; ground $55.50.

Los Angeles: Demand slow; supply ample; trend unchanged; standard rolled $3.03 cwt., sacked; standard ground $3.03 cwt., sacked.

Chicago: Demand quiet; trend steady; supply fair; carlots $37.

Seattle: Demand and supply good; trend firm; $45, bulk, truck loads (new crop).

BENTONITE (SODIUM)

Chicago: F.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25 net.

Denver: Demand fair; trend good; supply ample; $21.

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 200 mesh fine $31.

BLOOD FLOUR

Louisville: Demand fair; trend strong; supply good; $80@85.

BLOOD MEAL

Louisville: Demand fair; trend strong; supply good; $80@85.

Ogden: Supply normal; $92.50 in 100-lb. bags, f.o.b. Ogden.

Portland: Demand slow; supply ample; trend unchanged; $115.

Omaha: Demand fair; supply good; trend fair; $95, Omaha basis.

New Orleans: Demand slow; trend unchanged; supply normal; $80@85.

San Francisco: Demand fair; supply ample; 3¢ a unit of ammonia.

Los Angeles: Demand slow; trend unchanged; supply light; $5.75 a unit of ammonia.

Chicago: Demand fair; trend steady; supply adequate; carlots, guaranteed 80% protein, 100-lb. bags $120.

BONE MEAL (STEAMED)

New Orleans: Demand fair; trend easy; supply ample; $85@90.

Boston: Demand and supply steady; $100.

Portland: Demand slow; supply ample; trend unchanged; $102.

Denver: Demand good; trend steady; supply ample; $103.20, Denver.

Louisville: Demand dull; trend stronger; supply light; $80@85.

Cincinnati: Demand good; supply fair; trend strong; $95, Cincinnati.

San Francisco: Demand good; supply ample; $75.

Buffalo: Demand good; trend strong; supply limited; $110.

Los Angeles: Demand fair; trend unchanged; supply adequate; imported $78 in 20-ton lots.

Ft. Worth: Demand poor; supply light; $90, f.o.b. Ft. Worth, local manufacture.

Chicago: Demand and supply fair; trend steady; carlots, in 100-lb. bags $97.50.

Seattle: Demand good; trend firm; supply limited; $89, delivered, truck lots.

BREWERS DRIED GRAINS

San Francisco: Demand fair; supply ample; $54.

St. Louis: Demand good; trend steady; supply adequate; $43.

Los Angeles: Demand slow; trend unchanged; supply adequate; $49.50 bulk, $53.50 sacked.

Buffalo: Demand fair; trend steady; supply adequate; $41.50, bulk, Boston.

Ft. Worth: Demand fair; supply sufficient; 26% protein $49@50, September, delivered Ft. Worth.

Chicago: Demand fair; trend slightly easier; supply ample; carlots, 26% protein $43.

Philadelphia: Demand slow; trend unsettled; supply fair; $52.

Boston: Demand steady; supply fair; 26% $50; 22%, Canadian $49.50.

Louisville: Demand fair; trend steady; supply good; $46.

New Orleans: Demand fair; trend easy; supply ample; $49@51.

Cincinnati: Demand poor; trend steady; supply adequate; $51.

BREWERS DRIED YEAST

Denver: Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

Portland: Demand good; supply ample; trend unchanged; 8⅛¢ lb.

Louisville: Demand slow; trend steady; supply good; 19@10⅛¢ lb.

Boston: Demand and supply steady; 11¢ lb.

Omaha: 10⅛¢ lb.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb.

Milwaukee: Demand quiet; trend steady; supply ample; per lb., carlots 10@11¢; l.c.l. 10⅛@12¾¢.

St. Louis: Demand fair; trend steady; supply ample; per lb., carlots 9⅛@10¢; ton lots 10⅛¢; less than ton lots 11⅛¢.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb.

New York: Carlots 9⅝¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10⅛¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

San Francisco: Demand fair; supply good; 10¢ lb.

Buffalo: Demand fair; trend steady; supply ample; $9.25 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; $10 cwt. in 5-ton lots; $11 cwt. in ton lots; $12 cwt. in less than ton lots.

Chicago: Demand fair; trend steady; supply ample; per lb., carlots 9⅛@10½¢; l.c.l. 9⅝@12¼¢.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

BUTTERMILK-CONDENSED

Louisville: Demand dull; trend steady; supply nil; $4.25 cwt., nominal.

Ogden: Supply average; $4.40, 100-lb. drum.

Philadelphia: Demand slow; supply light; $4.25 cwt.

Boston: Demand slow; supply tight; 3¾¢ lb.

New Orleans: Demand slow; trend unchanged; supply average; $4.25@4.30 cwt.

San Francisco: Demand fair; supply good; $5 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb., 100-lb. lots; 4½¢ lb., 500-lb. lots.

Chicago: Demand fair; trend steady; supply fair; $3.25@3.50 cwt.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; flour $10.15, sacked, 20-ton cars; meal $11.15, sacked, 20-ton cars.

Minneapolis: Fine grind, 50-lb. bags $12.25, 100-lb. bags $11.50; bulk, boxcar $10; bulk hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Chicago: Demand steady; trend firm; supply adequate; fine grind, plain, 100-lb. bags $9.54; bulk, in hopper cars $7.54; bulk in box cars $8.04; granular grind $1 premium.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight)

New York: Crystals $15.28, flour $10.28.
Buffalo: Crystals $16.11, flour $11.11.
Toledo: Crystals $17.96, flour $12.96.
Boston: Crystals $16.53, flour $11.63.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CHARCOAL

Boston: Demand and supply steady; $110.

San Francisco: Demand steady; supply ample; $141.

Los Angeles: Demand fair; trend unchanged; supply adequate; hardwood poultry $156, less than ton lots; $144.40, ton lots.

Chicago: Demand and supply fair; trend steady; carlots, in 50-lb. multiwalls $110.

COCONUT OIL MEAL

Portland: Demand slow; supply ample; trend unchanged; $68.

San Francisco: Demand good; supply tight; solvent $68.

Los Angeles: Demand limited; trend unchanged; supply moderate; copra cake $75, bulk, September delivery.

Seattle: Demand fair; trend firm; supply ample; $82, delivered, truck (California).

COD LIVER OIL (FORTIFIED)

Boston: Demand and supply steady; 600 D, 2,250 A 19¢ lb.; 600 D, 1,500 A 18¢; 300 D, 3,000 A 20½¢; 300 D, 2,250 A 18½¢; 300 D, 1,500 A 17¢.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 18½@20¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 500 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

Denver: Demand fair; trend steady; supply ample; dried $167, Denver.

Boston: Demand and supply good; 4½¢ lb.

New Orleans: Demand light; supply normal; trend steady; $60@70, f.o.b. Gulf.

Los Angeles: Demand slow; trend unchanged; supply adequate; $4.54 cwt.

New York: Demand fair; trend steady; supply tight; 3⅛@3¾¢ lb., f.o.b. eastern shore.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $46.90, meal $64.90.
Atlanta: Feed $52.98, meal $70.98.
Birmingham: Feed $51.64, meal $69.64.
Boston: Feed $51.84, meal $69.84.
Chicago: Feed $40, meal $58.
Cleveland: Feed $48.14, meal $66.14.
Denver: Feed $50.51, meal $68.51.
Ft. Worth: Feed $48.96, meal $66.96.
Indianapolis: Feed $45.36, meal $63.36.
Kansas City: Feed $40, meal $58.
Louisville: Feed $47.21, meal $65.21.
New Orleans: Feed $50.20, meal $68.20.
New York: Feed $52.43, meal $69.43.
Norfolk: Feed $50.71, meal $68.71.
Philadelphia: Feed $51.02, meal $69.02.
Pittsburgh: Feed $48.96, meal $66.96.
St. Louis: Feed $40, meal $58.

CORN OIL MEAL

Louisville: Demand dull; trend steady; supply ample; $49.45.

Cincinnati: Demand fair; trend steady; supply adequate; $46.50.

COTTONSEED OIL MEAL

Philadelphia: Demand and supply fair; trend unsettled; $67.

Denver: Demand fair; trend steady; supply ample; 2% fat $65.40, Denver.

Wichita: Demand fair; supply sufficient; 41% old process $67.50.

Louisville: Demand fair; supply good; trend very easy; new crop meal now on market; old process $61.50; new process $60.50.

Portland: Demand slow; trend lower; supply ample; $79.

Ogden: Supply average; 41% $80@85.

Boston: Demand slow; supply light; $87.

Omaha: Demand slow; trend easy; supply ample; 41% solvent $64, bulk, delivered Omaha.

New Orleans: Demand slow; trend steady; supply adequate; $69@70.

Cincinnati: Demand fair; trend steady; supply adequate; $69.

Buffalo: Demand poor; trend lower; supply adequate; $72.75, Boston.

St. Louis: Demand slow; trend lower; supply adequate; solvent $71.

Kansas City: Demand improved, especially for forward shipment; none available at Memphis yet, spot material coming from Texas points; old process meal $67, sacked, delivered, Kansas City; $54@55, sacked, Memphis for September; solvent meal $67, sacked, delivered, Kansas City; $52.50@53, sacked, Memphis, for September.

Los Angeles: Demand and supply limited; trend unchanged; $72@73, bulk.

San Francisco: Demand good; supply tight; 41% $77; 44% $78.50.

Ft. Worth: Demand poor; supply sufficient; 41% old process $60@62, solvent 1% fat added $60.20; pellets $2 additional; cottonseed hulls $17, sacked.

Chicago: Demand quiet; trend higher; supply fair; carlots, Memphis basis, September through December shipment, hydraulic $54.50, solvent $54.50.

Seattle: Demand fair; trend firm; supply ample; 41% expeller process $86, prompt, delivered, truck lots; $81, delivered, truck (new crop, September delivery).

Atlanta: Demand good; trend strong; supply limited; 41% $57, f.o.b. producing mills in Georgia and Alabama.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9⅝@10¢ lb.; 3,000 ICU 11⅛¢ lb.

New York: Demand and supply good; trend firm; price per lb. in 50- and 100-lb. bags, or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Cincinnati: 18% phosphorus $81; 13% phosphorus $64.98, f.o.b. Cincinnati.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $71.50 net ton, f.o.b. Houston, 100-lb. multiwall paper bags, $68.50 in bulk.

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; carlots $63.50, truck load $64.25, net ton, f.o.b. Coronet in 100-lb. multiwall bags; $60.50 and $61.25 in bulk.

DICALCIUM PHOSPHATE

Cincinnati: 18½% phosphorus $92@93.

Denver: Demand fair; trend steady; supply ample; $95.60, delivered in Denver.

Portland: Demand slow; supply ample; trend unchanged; $115.

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged materials.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

DISTILLERS DRIED GRAINS

Cincinnati: Demand poor; trend steady; supply adequate; $49.50.

Louisville: Demand dull; trend easy; supply normal; bourbon grains: light $49, dark $54, solubles $77.

Boston: Demand light; supply adequate; light $58, dark $59.

Philadelphia: Demand slow; supply light; $60.50.
San Francisco: Demand fair; supply ample; solubles $85.
Buffalo: Demand and supply fair; trend steady; $53, bulk, Boston.
Seattle: Demand good; trend steady; supply limited; $67.50, delivered, truck lots.

DRIED BEET PULP

Portland: Demand good; supply limited; trend unchanged; $56.40, California.
Boston: Demand fair; supply spotty; $51.50.
New Orleans: Demand fair; trend unchanged; supply adequate; $60@61.
Denver: Demand good; trend steady; supply ample; $49.23, delivered in Denver.
Ogden: Supply normal; $44@48.
San Francisco: Demand good; supply fair; $42.80, bulk.
Los Angeles: Demand steady; trend unchanged; supply adequate; molasses $47.80 @48.60.
Buffalo: Demand fair; trend steady to lower; supply good; $51, Boston.
Ft. Worth: Demand slow; light offerings; carlots, 50-lb. papers $61.50, September, delivered Ft. Worth.
Seattle: Demand good; trend firm; supply limited; $52, delivered, carlots.
Atlanta: Demand fair; supply limited; trend weak; $57.70, delivered.

DRIED BUTTERMILK

Buffalo: Demand fair; trend steady; supply limited; $11.85 cwt.
New Orleans: Demand fair; trend easy; supply normal; $11.50@12 cwt.
Louisville: Demand dull; trend steady; supply light; 11@11½¢ lb.
Ogden: Supply average; $8.50, 100-lb. bag.
Los Angeles: Demand fair; trend unchanged; supply adequate; $11.75 cwt.
San Francisco: Demand fair; supply ample; 11½¢ lb.
Chicago: Demand fair; trend steady; supply ample; per cwt., medium acid $10.60 @10.80, sweet cream $11@11.25.

DRIED CITRUS PULP

New Orleans: Demand fair; trend strong; supply good; $35@40, f.o.b. Florida points.
Boston: Demand fair; supply adequate; $35, f.o.b. Florida.
San Francisco: Demand and supply fair; meal $54.
Los Angeles: Demand steady; trend unchanged; supply moderate; orange pulp $41, bulk; lemon pulp $40, bulk.
Buffalo: Demand fair; trend steady; supply adequate; $35, f.o.b. Florida points.
Atlanta: Demand fair; trend steady; $35, f.o.b. Florida producing mills; meal $30, f.o.b.

DRIED SKIM MILK

Minneapolis: Demand good; supply ample; 11¢ lb.
Los Angeles: Demand slow; trend unchanged; supply adequate; $14 cwt., less than ton lots; $13.75 cwt., ton lots.
Buffalo: Demand fair; trend steady; supply ample; spray $10.65 cwt.
San Francisco: Demand and supply fair; 13½¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; 10½@10¾¢ lb.
Boston: Demand good; supply light; 12¢ lb.
Louisville: Demand dull; trend steady; supply light; 11@11½¢ lb.
Portland: Demand slow; supply ample; trend unchanged; 13¢ lb.
Ogden: Supply average; $15.15, 100-lb. drum.
New Orleans: Demand fair; trend unchanged; supply ample; $11@11.50 cwt.
Philadelphia: Demand slow; supply light; $12.50 cwt.
Chicago: Demand fair; trend steady; supply adequate; $10.40@10.65 cwt.

DRIED WHEY

Minneapolis: 40 mesh $5.65 cwt.; standard $5.50 cwt., producer's plant.
New Orleans: Demand good; trend easy; supply ample; $6@6.50 cwt.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
Ogden: Supply normal; $6.90, 100-lb. bag.
Boston: Demand steady; supply fair; 5½¢ lb., f.o.b.
Louisville: Demand dull; trend steady; supply light; 6½¢ lb.
Portland: Demand slow; supply ample; trend unchanged; $6.80 cwt.
Denver: Demand fair; trend steady; supply ample; $6.50 cwt.
Wichita: Demand fair; supply sufficient; $6.50 cwt.
Philadelphia: Demand slow; supply light; $6.50 cwt.
San Francisco: Demand steady; supply good; $5.75 cwt.
Kansas City: Demand fair; trend steady; supply adequate; regular and partially delactosed $5.50 cwt., producers' plants.
Los Angeles: Demand slow; trend unchanged; supply adequate; $6.10 cwt. in carloads; $6.35 cwt. in l.c.l.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6, delivered Ft. Worth; $6.25 ton lots, f.o.b. warehouse Ft. Worth.
Chicago: Demand fair; trend unchanged; supply ample; $5.50 cwt., f.o.b. plant.
Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.

FEATHER MEAL (HYDROLYZED)

Los Angeles: Demand fair; trend unchanged; supply adequate; $1 a unit of protein.
Boston: Demand slow; supply scarce; $85, nominal.
Ft. Worth: Demand and supply fair; 85% to 87% protein $82, f.o.b. trucks, north Texas plants.
Atlanta: Demand fair; supply good; trend steady; $86, f.o.b. Alabama and Georgia producing mills.

FISH MEAL

Minneapolis: Demand fair to good; supply fair; Gulf menhaden $146; 60% blended $153@160; 70% herring $2 a unit, f.o.b. West Coast.
San Francisco: Demand slow; supply ample; $2 a unit of protein.
Ft. Worth: Demand fair to good; supply extremely light on menhaden, adequate on Angola; fishing has been very poor on menhaden, due to squally weather; 60% menhaden $135; 60% Angola $138, delivered Ft. Worth.
Buffalo: Demand fair; trend steady; supply ample; 60% protein menhaden $140 bulk, $145 sacked.
Cincinnati: Demand fair; trend steady; supply adequate; $160.
New Orleans: Demand fair; trend steady; supply good; menhaden 60% $126@128; scrap $122@124, f.o.b. Gulf.
Portland: Demand slow; supply ample; trend unchanged; $2.05.
Denver: Demand fair; trend steady; supply ample; $2.17½ a unit of protein, f.o.b. West Coast.
Louisville: Demand dull; trend steady; supply light; $160, nominal.
Omaha: Demand fair; trend good; supply adequate; 60% menhaden $145.
Boston: Demand and supply steady; 60% menhaden $130.
Ogden: Supply normal; $2.20 a unit protein, f.o.b. Coast; 65% $176@178.
Los Angeles: Demand improved; trend unchanged; supply light; local production, 60% protein $2.15 a unit.
Chicago: Demand quiet; trend easier; supply adequate; eastern or Gulf menhaden meal $128 and scrap $124; northeast redfish meal $130.
Atlanta: Demand fair; supply good; trend weak; 60% menhaden $125, f.o.b. Atlantic Gulf ports.
Seattle: Demand and supply good; trend steady; $2.15 a unit protein, ex-dock.

HAY

Cincinnati: Demand poor; trend steady; supply adequate; No. 1 timothy $24; second cutting No. 1 green alfalfa $28; mixed $27; wheat or oat straw $18@19.
Boston: Demand spotty; supply adequate; No. 2 timothy $41@44.
Portland: Demand good; trend higher; supply ample; $34.
Denver: Demand fair; trend good; supply ample; alfalfa baled $25 on new hay second cutting.
Louisville: Demand slow; trend steady; supply ample; extra fancy No. 1 race horse quality $30; regular No. 1 $25 all varieties, No. 2 $22 or less; straw $20.
Wichita: Demand fair; supply sufficient; prairie $17.50, alfalfa $15@18.
Ogden: Supply average; $1@1.25 bale; $20 ton in the field.
Philadelphia: Demand slow; supply light; $25@26.
Los Angeles: Demand good; trend stronger; supply limited; U.S. No. 1 $34@35; U.S. No. 2 leafy $32@33; U.S. No. 2 green $32@33; U.S. No. 2 $29@30.
Ft. Worth: Demand fair for alfalfa; practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $34@36, No. 2 $32@34; No. 2 prairie $24@26; No. 2 Johnson grass $22@24, delivered Texas common points.
Seattle: Demand good; trend firm; supply fair; alfalfa, U.S. No. 2 green, new crop $33, delivered, truck lots.

HOMINY FEED

Buffalo: Demand fair; trend steady to lower; supply good; $45.50, bulk, Boston.
Memphis: Demand nil; trend steady; supply ample; white $41.80, yellow $41.80.
St. Louis: Demand slow; trend steady; supply ample; yellow $41.50.
Cincinnati: Demand fair; trend steady; supply adequate; $44.
New Orleans: Demand slow; supply adequate; trend easy; $46.50@47.
Louisville: Demand slow; trend stronger; supply light; $45.50.
Boston: Demand and supply good; $51.50.
Kansas City: Demand slow; trend steady; supply ample; yellow $32@32.50, bulk, white $1 less.
Chicago: Demand quiet; trend steady; supply fair; carlots $40.50.
Seattle: Demand fair; trend steady; supply good; $57, delivered, sacked, carlots.

LINSEED OIL MEAL

Cincinnati: Demand poor; trend steady; supply adequate; new process $81; old process $90.
New Orleans: Demand slow; trend steady; supply ample; $83.50@84.
Boston: Demand slow; supply adequate; 34% $84.
Denver: Demand fair; trend very firm; supply limited; $82.94, Denver.
Wichita: Demand fair; supply sufficient; 34% $82.50.
Louisville: Demand slow; trend steady; supply light; old process $91; new process $82.50.
Omaha: Demand good; trend strong; supply tight; 34% solvent $70.30 bulk; 32% old process $78.30, Omaha basis.
Portland: Demand slow; trend higher; supply limited; $88.
Philadelphia: Demand slow; trend unsettled; supply fair; 34% $87.
Los Angeles: Demand steady; trend unchanged; supply limited; local production, 29% protein, new crop $71, bulk.
Kansas City: Demand fairly good; trend stronger on estimates that flaxseed crop will be only about half of what it was last year; supply adequate; old process meal $73, bulk, Minneapolis; solvent meal $65.50@66.
Minneapolis: Demand good; supply short; trend firm; $65@66, August-September; $68 @68.50, October-December.
San Francisco: Demand fair; supply ample; $77.50.
Ft. Worth: Demand slow; supply light; Texas production, 34% old process $81, rail or truck.
Chicago: Demand better; trend steady to higher; supply fair; carlots, Minneapolis basis: Solvent $65, expeller $72.
Seattle: Demand fair; trend steady; supply limited; 34% protein (Montana) $90, delivered, carloads.

LIVER AND GLANDULAR MEAL

Omaha: Demand good; trend steady; supply light; 65% $210, Omaha basis.

MALT SPROUTS

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $42.
New Orleans: Demand fair; trend steady; supply ample; $40@42.
Boston: Demand and supply limited; $42.50.
Chicago: Demand fair; trend higher; supply ample; No. 1, uneven bags $29, carlots.

MEAT AND BONE MEAL

St. Paul: Demand fair; supply adequate; $82.50@87.
Cincinnati: Demand better; trend stronger; supply fair; 50% meat and bone scraps $79.50, Cincinnati.
Omaha: Demand and supply good; trend strong; $82.50.
Boston: Demand cautious; supply ample; $1.10 a protein unit; converted 50% $67.50.
Denver: Demand normal; trend steady; supply ample; 50% $75, bagged, truck lots; $72 bulk lots.
Wichita: Demand good; supply insufficient; above-the-average price resulting from shortage of receipts at packing plants, coupled with a high demand; 50% $97.50, f.o.b. plant; 55%, no quotations, no offerings.
Ogden: Supply average; $87, in 100-lb. bags.
Portland: Demand slow; trend lower; supply ample; $1.55.
Louisville: Demand slow; trend steady; supply good; $80@85.
St. Louis: Demand good; trend strong; supply short; $87.50.
Kansas City: Demand good as mills anticipate strike in meat packing industry; trend stronger; supply tight; 50% meat and bone scraps $82.50, sacked.
San Francisco: Demand fair; supply ample; $1.50 a unit of protein, bulk.
Los Angeles: Demand improved; trend unchanged; supply moderate; 50% protein $1.65 a unit, bulk.
Buffalo: Demand fair; trend steady; supply ample; 50% meat scraps $75 bulk, $80 sacked.
Ft. Worth: Demand improving; supply lighter; meat and bone, 50% $79.50, f.o.b. or delivered Ft. Worth.
Chicago: Demand and supply fair; trend steady; carlots, 50% protein, 100-lb. bags $87.50.
New York: Demand poor; trend lower; supply fair; 50% $65, 55% $72.50, bulk; 50% $67.50, 55% $75, sacked.
New Orleans: Demand easy; trend easy; supply ample; $92@95.
Seattle: Demand good; trend weak; supply ample; $80, ex-warehouse, 50% protein.

MILLFEED

Minneapolis: Demand slow; supply ample; trend weak; middlings $30@31.50; bran $32.50; red dog $43@45.50.
Kansas City: Demand very slow; trend weak; supply ample with bulk middlings particularly pressing; bran $31.25@32, shorts $35.25@36, sacked; bran $25@25.75, shorts $31@31.75, middlings $25@25.26, bulk.
Wichita: Demand fair; supply about offsets demand; basis Kansas City: bran $32.25@32.75, shorts $36.25@36.75; bran advanced $2.50 and shorts $1, compared with preceding week.
Ft. Worth: Demand good on all millfeeds; all offerings light on millfeed for immediate shipment; carlots, burlaps, bran $40.50, gray shorts $46, bulk middlings $37.50, delivered Texas common points; $1.50 higher on bran, $1.50 higher on shorts and 50¢ higher on middlings compared with previous week.
Chicago: Action in the Chicago millfeed market during the past week saw little readjustment, either up or down. Demand was slow, with no pressure on the market. Scalding hot temperatures and little rainfall did little to stimulate demand. Mixers apparently were not much inclined to build up inventories. Call from jobbers was on the slow side also. Quotations, Chicago basis, carlots: standard bran, sacked $37.50, bulk $30; standard midds., sacked $37, bulk $30.50@31; red dog, sacked $51, bulk $47.
St. Louis: Sacked, bran $37.50@38, shorts $41.50@42; bulk, bran $30@30.50, shorts $35.50@36, middlings $31@31.50.
Cincinnati: Demand fair; trend steady; supply adequate; bran $40, middlings $42.
Omaha: Demand slow; trend easy; supply ample; sacked bran $33.50; sacked gray shorts $37; bulk standard midds. $28, all Omaha basis.
Boston: Demand slow; supply spotty; bran $45, middlings $47.50.

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Kansas City, St. Louis, Chicago, Buffalo, Omaha, Toledo, Columbus, Fort Worth, Portland, Boston, Galveston, Enid, Minneapolis, Norfolk, San Francisco, Nashville, Louisville, Memphis, Houston

Buffalo: Millfeed sales came in dribbles last week, with bulk items in less demand than sacked. All mills here are back into operation now, but supplies were thin. Spot supplies for next week were offered by almost all mills. The sacked differential widened to $6 from $5.50. Bulk bran ended unchanged, to off 50¢, sacked was up 50¢@$1; bulk middlings were unchanged, to down 50¢; sacked were unchanged, to up 50¢; bulk red dog dropped $3 and sacked declined $2. Quotations Aug. 26: bulk bran $30.50@31.50, sacked $36.50@37.50; bulk middlings $31.50@32.50, sacked $37.50@38.50; bulk red dog $48@50, sacked $53@54.50.

New York: Demand fair; trend steady; supply good; bran $44@44.50, standard midds. $45@45.50.

Philadelphia: Demand spotty; trend unsettled; supply fair; bran $44, standard midds. $46, red dog $63.

New Orleans: Demand fair; trend steady; supply ample; sacked, bran $44@44.75, shorts $48@48.75; bulk, bran $37.50@38.25, shorts $43@43.75.

Memphis: Demand poor; trend steady; supply ample; wheat bran $40.20, sacked; gray shorts $44.20, sacked; standard midds. $34.70, bulk.

Louisville: Demand fair; trend strong; supply good; bran $43.60; mixed feed $46.10; brown shorts $49.10; standard midds. $43.80.

Seattle: Demand good; trend strong; supply limited; $47, delivered common transit points, carlots.

Portland: Demand good; trend higher; supply limited; $45.

Ogden: Demand about equal to supply; trend firm; supply average; to Utah and Idaho: red bran and mill run $41, middlings $46; to Denver: red bran and mill run $48, middlings $53; to California: red bran and mill run $48.50, middlings $53.50, f.o.b. San Francisco and Los Angeles.

Denver: Demand moderate; trend steady; supply steady; shorts $39.75, bran $35.75, mill run $37.75.

Los Angeles: Demand improved; trend stronger; supply small; standard mill run $45.50@46, bulk; red bran $45.50@46, bulk.

San Francisco: Demand good; supply tight; millfeed $49.50, red bran $54.50.

MINERAL FEED

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Portland: Demand good; supply ample; trend unchanged; $45.

Ogden: Supply normal; $113 in 50-lb. blocks; $103, granular, 50-lb. bags.

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $97.50, 100-lb. bags $92.50, f.o.b. plant.

Denver: Demand fair; trend steady; supply ample; $155.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Ft. Worth: Demand fair; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus 6% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50-lb. paper bags).

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

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If you are mixing your own brand of feeds, let us show you why Gorton's Blends make the most profitable feeds you can sell. At least, let us send you our literature on these fortified red-fish meal pre-mixes for broilers, layers, turkeys or hogs. Our address is . . .

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BOSTON, MASS.

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MOLASSES

St. Louis: Demand slow; trend steady; supply ample; 10¾¢ gal., New Orleans.

Memphis: Demand poor; trend steady; supply ample; blackstrap 10½¢ gal., tank car, f.o.b. New Orleans.

Minneapolis: Demand poor to fair; supply adequate; trend steady; $30.50 tank trucks, delivered.

New York: Demand fair; trend steady; supply good; blackstrap 16¢ gal., tank cars, tank wagons, f.o.b. New York.

New Orleans: Demand good; supply ample; trend steady; 11¢ gal. tank cars and trucks; 600 lb. customers drums, $8.15.

Cincinnati: Demand fair; trend steady; supply adequate; 10¾¢ gal., New Orleans.

Denver: Demand fair; trend steady; supply ample; 10¢ gal., New Orleans; $18.38 ton, New Orleans; $21 ton, West Coast.

Louisville: Demand slow; trend steady; supply normal; 10¼¢ gal., tank car lots, f.o.b. Gulf ports.

Boston: Demand fair; supply plentiful; 16½¢ gal. in tank cars.

Kansas City: Demand slow, trend steady; supply ample; 10½@10¾¢ gal., tank car, New Orleans, with most quotations at the higher price

San Francisco: Demand and supply good; $21, f.o.b. cars, Richmond, Cal.

Los Angeles: Demand good; trend unchanged; supply adequate; $21, bulk, f.o.b. tank cars; $21.25, bulk, f.o.b. tank trucks.

Buffalo: Demand fair; trend steady; supply adequate; 16½¢ gal., f.o.b. Albany.

Ft. Worth: Demand fair; supply sufficient; blackstrap 11¾¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $26.80 ton, seller's market price on date of shipment.

Seattle: Demand fair; trend easy; supply good; $21.50, f.o.b. Seattle, tank car lots or truck lots

Atlanta: Demand fair; trend steady; supply good; citrus $18@22.50, f.o.b. Florida producing plants.

NIACIN

New York: Trend steady; $5 kilo, 10-kilo lots; $6.20 kilo, 5- and 2½-kilo lots; $6.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Boston: Demand and supply fair; white pulverized $58.50; reground oat feed $28.

Louisville: Demand slow; trend fairly steady; supply ample; reground $23.80; rolled oats $84.30; feeding oatmeal $77.30; pulverized white $52.80; crimped white oats $69.30.

Philadelphia: Pulverized white demand slow, supply fair $53; domestic demand slow, supply light $27; Canadian oat feed demand slow, supply very light $28.50.

Portland: Demand slow; supply ample; trend unchanged; rolled $65, ground $62, cleaned $64.

Minneapolis: Demand slow; supply good; trend steady; feeding rolled oats $80, feeding oatmeal $68.50, standard pulverized $46, crimped $59, reground oat feed $23.

Cincinnati: Demand poor; trend steady; supply adequate; reground oats $28; pulverized white oats $51; rolled oats $81.

Los Angeles: Demand fair; trend unchanged; supply light; local production, pulverized $61.

Ft. Worth: Demand slow; supply sufficient; 11% protein oat millfeed $40@41; reground $26@27, September.

Memphis: Demand poor; trend lower; supply ample; 3½% protein, reground oat feed $22.75.

Chicago: Demand fair; trend steady to easier; supply ample; carlots, reground oat feed $15.50; No. 1 fine ground feeding oatmeal $70@72; feeding rolled oats $79@81.

Seattle: Demand and supply fair; trend firm; $49, bulk, delivered truck lots (new crop).

OYSTER SHELL

New Orleans: Demand and supply good; trend steady; $23@24.

Cincinnati: Demand fair; trend steady; supply adequate; $24.45.

Boston: Demand and supply steady; in paper $26.02.

Louisville: Demand good; trend steady; supply normal; 80-lb. paper bags $23.45; 50-lb. paper bags $23.20; 25-lb. paper bags $25.95.

Portland: Demand good; supply ample; trend unchanged; western $34, eastern $39, granite grits $28, shell flour $24.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Los Angeles: Demand fair; trend unchanged; supply adequate; $14.80.

Seattle: Demand and trend steady; supply good; $36, delivered, carlots.

PEANUT OIL MEAL

Atlanta: Demand good; trend steady; supply nil; 45% $58, f.o.b. Georgia and Alabama producing mills.

PEAT MOSS

San Francisco: Demand and supply fair; $3.65 a bale.

Boston: Demand and supply steady; $3.15 a bale.

Philadelphia: Demand slow; supply good; $2.80 a bale, f.o.b. pier.

Portland: Demand slow; trend higher; supply ample; $3.30 a bale.

Los Angeles: Demand fair; trend unchanged; supply adequate; Canadian, 6.1 cu. ft. bales $3.75.

Chicago: Demand fair; supply adequate; trend steady; standard 7½ cu. ft. bales $3.80.

Seattle: Demand and supply good; trend firm; $2.80 a bale, delivered, truck lots.

POULTRY BY-PRODUCTS

Los Angeles: Demand fair; trend unchanged; supply adequate; $1.45 a unit of protein.

Ft. Worth: Demand and supply fair; 55% protein $85, f.o.b. north Texas plants.

Atlanta: Demand fair; supply good; trend weak; meal $80.50, f.o.b. Georgia and Alabama producing mills.

Boston: Demand fair; supply light; $88.50, nominal.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots, in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures; freight prepaid or paid to destination.

RICE BY-PRODUCTS

San Francisco: Demand good; supply ample; bran $45; polished $49.

Los Angeles: Demand slow; trend stronger; supply very tight; bran, California production, high fat content $53.

Ft. Worth: Demand slow; offerings light; carlots, rice bran $33@34, f.o.b. south Texas rice mills; hulls $6.50, f.o.b. mills.

Atlanta: Demand fair; supply limited; trend steady; bran $40@41, delivered.

SCREENINGS

Ft. Worth: Demand increased; supply limited; ground mixed grain $25.

Cincinnati: Demand fair; trend steady; supply adequate; ground grain screenings $34.

Buffalo: Demand fair; trend steady to lower; supply adequate; ground, sacked $33, New York, lake and rail; unground, bulk $28, New York.

Chicago: Demand easier; trend irregular; supply ample; carlots: ground grain screenings $29.50; Canadian $25.75.

Minneapolis: Trend steady and slow; demand poor; supply fair; oil screenings back into the picture, Canadian $50, basis 15%; domestic $50, basis 15%; Canadian screenings $17 immediate, tight for futures at $20; Canadian ground $24; lights $4@10; mediums $11@20; heavies $21@35.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Los Angeles: Demand steady; trend weaker; supply ample; milo $2.12½ cwt., bulk.

Ft. Worth: Demand fair for domestic, good for export; carlots, bulk, No. 2 yellow milo $1.94@1.96, delivered Texas common points; export rail $1.90.

SOYBEAN OIL MEAL

Minneapolis: Easier trend; demand slow; supply ample; $50@51.50, bulk, Decatur.

Memphis: Demand slow; trend lower; supply limited; prime 44% solvent $64, sacked, f.o.b. Memphis.

St. Louis: Demand slow; trend steady; supply ample; 44% $62.

Omaha: Demand slow; trend steady; supply ample; 44% $59.10, bulk, delivered Omaha.

New Orleans: Demand slow; trend steady; supply ample; $66.50@67.

Cincinnati: Demand poor; trend steady to higher; supply adequate; $54.50@55, bulk, Decatur.

Louisville: Demand fair; trend stronger; supply normal; $65.20.

Wichita: Demand fair; supply ample; 44% $66; 50% $73, f.o.b. Wichita.

Boston: Demand good; supply ample; 44% $53; 50% $58.50, both bulk, f.o.b. Decatur.

Portland: Demand slow; supply ample; trend unchanged; $52, f.o.b. Decatur.

Philadelphia: Demand and supply fair; 44% $53, bulk, Decatur.

Denver: Demand and supply fair; trend steady; $73.14, Denver.

Chicago: During the week ending Aug. 26 the soybean oil meal market rivaled the millfeeds for being quiet and devoid of any feature to speak of. The main difference was that prices for oil meal generally were scaled downward with current levels off $1.50@3 all along the line. Production of soybean oil meal during July at 745,700 tons compared with 770,200 tons in June and 714,727 tons the corresponding week a year ago reflected the crushings of beans this past month. Heavy inroads were made on the stocks of meal in processors' hands at the end of July at 118,400 tons—a reduction of nearly 50,000 tons from the previous month, but still nearly twice as large as the year ago stock total of 61,314 tons in the same positions. Quotations: carlots, Decatur basis, 44% protein, unrestricted billing $53, eastern restricted $51; 50% protein, unrestricted billing $58.50, eastern restricted $55.50.

Kansas City: Demand slow; trend steady; supply adequate for demand but not burdensome since several mills are shut down for repairs; new beans are available in Missouri; meal for Kansas City $52@53, bulk, Decatur; unrestricted $53.

San Francisco: Demand good; supply ample; $81.90.

Los Angeles: Demand improved; trend stronger; supply smaller; $77.90, bulk.

Ft. Worth: Demand fair; supply sufficient; carlots, southern origin, 44%, September $67.60@68.60; 50% protein, September $77@78; truck, 44% $71, sacked.

Atlanta: Demand fair; trend weak; supply good; 44% $69.10, delivered.

TANKAGE

St. Paul: Demand fair; supply adequate; $85; stronger tone due primarily to talk of strike in industry.

Cincinnati: Demand fair; trend steady; supply ample; 60% digester $81.50, Cincinnati.

Wichita: Demand good; supply insufficient; 60% $92.50, f.o.b. plant.

Omaha: Demand and supply good; trend strong; $82.50.

Louisville: Demand and supply good; trend stronger; 60% protein $85@90.

New Orleans: Demand fair; trend steady; supply light; $92@93.50.

Kansas City: Demand improved as mills anticipated strike in meat packing industry; trend stronger; supply fairly tight; 60% digester $82.50, sacked.

Ft. Worth: Demand fair; supply short; 60% digester $80, sacked, Ft. Worth.

St. Louis: Demand good; trend strong; supply short; $85.

Chicago: Demand fair; trend steady; supply ample; carlots, 60% protein, in 100-lb. bags $87.50.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; offerings limited; 5¾¢ lb., f.o.b. north Texas area.

WHEAT GERM MEAL

Buffalo: Demand poor; trend steady; supply fair; commercial grade $58, f.o.b. Buffalo.

New Orleans: Demand and supply fair; trend steady; $64@66.

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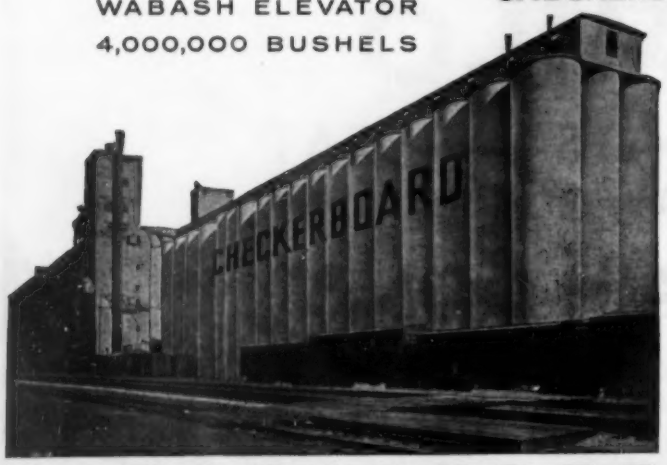
4,000,000 BUSHELS



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AFMA

(Continued from page 1)

clusively for those engaged in feed marketing and sales management."

Subjects related to marketing will predominate throughout the meeting, Mr. Glennon said. Topics include: "The Marketing Concept," "The Part of Sales Management (and) . . . The Role of Salesmen In The Marketing Concept," "Economic and Market Research," "Marketing the End Product," "National Feed Merchandising Plan," and "Sound Financing."

McKEE

(Continued from page 1)

and all equipment will be new. Bulk ingredients will be received by rail and truck and stored in 36 steel bins, varying in size from 10- to 25-ton capacity. Also, there will be bins for storing bulk finished feeds for prompt loading into trucks or cars.

O. K. Fisher, sales manager, reported that increased demand for Hawkeye Feeds has made it necessary for the McKee company to expand production. He noted also that more bulk trucks are being added to the truck fleet as needed. The new plant will produce a complete line of Hawkeye Feeds, including hard pellets, poultry crumbles and soft molasses cubes for cattle.

McKee Feed & Grain Co. has been in business here for nearly 50 years.

ADM

(Continued from page 7)

jara and scheduled for completion in 1960.

Here are some of the report's comments on other operations within the ADM agricultural group:

Earnings from soybean operations were higher than a year ago. Demand for soybean oil, coupled with large exports of salad oil and better processing margins were responsible for the improvement.

Although prices for dehydrated alfalfa were somewhat lower on the average, these were offset by reduced production costs. Toll storage and processing for other producers have been profitable.

Commander Elevators' earnings for the year were satisfactory. Sales of farm supplies through country elevators increased, although grain handling revenues declined because of temporarily reduced loading of grain.

Sales and profits in the linseed operations improved. Major factors in the high volume of linseed oil meal sales were the increasing number of beef cattle on feed and the higher ratio of linseed meal used in formula feeds. Exports also contributed to the good demand and adequate price levels for meal during most of the year. With a large takeover by the government of 1958 flaxseed and prospects for a smaller 1959 crop, stocks of flaxseed held by the Commodity Credit Corp. will influence the market during the coming year, the report said.

Grain Operations

Better earnings of the grain department resulted from several developments, including important shifts in the movement of grain.

The report continued: "Significant was the opening of the St. Lawrence Seaway, which enables large quantities of feed grains to move through Duluth-Superior into export trade. Normal business in wheat and other grains improved.

"The first full year of operations under the subsidy-in-kind export program for feed grains also increased the private grain trade's activity in the export and merchandising of grains. Under this program, government costs have been drastically reduced and the grain trade's services have been more fully utilized.

"Surplus stocks of grain were at record levels before the 1959 harvest began, but increased competition is anticipated in the year ahead because of expanded commercial and farm grain storage facilities in some parts of the country."

Four quarterly dividends of 50¢ a share, totaling $3,206,123 and equal to 59% of earnings, were paid during the year. On June 30, there were 7,787 stockholders, a 14% increase during the year. There were 1,605,221 shares outstanding.

Net worth reached a new high of $98,698,383, or $61.48 a share, at year end. Working capital increased to $50,977,812, or $31.75 a share.

With no bank loans at the close of the fiscal year, ADM remained one of the nation's few major corporations without any bank debts, loans, or preferred stock.

Marketing Program

Calling attention to the comprehensive marketing program recently established by the company, the ADM executives said this is aimed at determining buying trends and continuous analysis of customers' wants and needs.

"ADM management intends to make maximum use of the company's favorable financial structure, its experience and knowledge of agricultural commodities and the basic breadth of our research in these same products," the ADM executives told stockholders.

A leading processor and merchandiser of agricultural commodities, ADM operates 141 plants, elevators and mines in the U.S. and Canada.

A large portion of ADM's $4,028,410 in capital expenditures during the year was aimed at increasing productivity of existing operations, the ADM executives pointed out.

Grain storage capacity was increased 4.5 million bushels by additions to the elevator at Tacoma, Wash., the Soo elevator in Minneapolis, and 20 country elevators in southern Minnesota.

Production facilities for isolated proteins at Evendale, Ohio, were enlarged and soybean storage capacity there increased by 1,113,000 bushels to meet the demand.

POULTRY EXCHANGE

(Continued from page 6)

of weight throughout the flock.

Most flocks average about 6,000 birds, with the normal contract calling for 1¢ lb. for the grower who furnishes the plant and labor. Chicks, feed and medicine when needed are supplied by the contractor who also handles catching, crating and delivery to the plant.

With the opening of the exchange, contractors are consigning their birds there, although several dealers pointed out a large number of birds are still going direct to processors "under private treaty sales."

Stabilized Prices

Several indicated that as more of these birds are sold through the exchange prices will be more stabilized and more likely to rise with the competitive bidding.

The processors who also grow birds under contract for their own plant seldom have sufficient volume of their own birds to operate at peak efficiency, hence they also buy on the open market, but quote their own prices.

Several broiler contractors volunteered the opinion that closer coordination between the exchanges will mean the bulk of the broilers will eventually be sold at auctions, with the result of processors being faced with the problem of trying to step up their own broiler production to keep their plants operating, or else bidding for the birds on the open and competitive market.

Buy and Sell Through WANT ADS

CHEMELL

(Continued from page 7)

Both cattlemen and poultry producers indicated the recent opening of poultry auctions in Texas, Arkansas, Alabama, Georgia and North Carolina is proof of the efforts of the broiler industry to regain some control of the sale value of its product.

This opinion was shared by many broiler contractors who believed that in time all the poultry auctions will be more closely coordinated and will gain sufficient strength through support of the contractors, so that the large purchasers will "lose their stranglehold on prices."

A number of hog producers, as well as broilermen, thought the decision in the Chemell case may have direct, as well as indirect, influences on the future of contract farming in this area.

Results If Approved

They said that if the moratorium is approved by the creditors, the operation of the Chemell holdings will be under court control to some extent, and that court rulings on some phases of actual operational activity may open the door for other government controls.

Some thought this view was extreme, but they pointed out that whichever way the decision falls, the future pattern of contract farming may be materially changed. Furthermore, they expressed the opinion the large feed manufacturers may want more internal control of the operation before extending credit to large scale operators "who poor boy the deal on a shoe string."

Feed Creditors

The major feed companies listed as creditors by Chemell include Allied Mills, General Mills, Master-Mix, Pillsbury Co., Ralston Purina Co. and Cosby-Hodges.

One feed company official said "too many people are taking the Chemell petition too seriously"—this, despite the fact some $1½ million are involved and more than 110 firms are listed as creditors.

He said he could see no reason why Chemell could not continue to operate under a plan approved by the creditors, the largest of whom are obviously the feed manufacturers. But he declined to comment on whether it would be better for Chemell to continue, with court supervision, or for the enterprises to be taken over by the feed manufacturers.

Bright Side

Some livestock men saw a bright side to the situation. They said more farmers are likely to watch carefully what kind of a contract they sign, and some producers will be more cautious in expanding their operations with credit furnished or vouched for by the feed interests.

One factor frequently overlooked is the statement by Chemell's attorneys that the corporations are solvent and that "assets are far in excess of listed liabilities." The statement points out that recent credit restrictions imposed by feed companies and bankers necessitated the request for the moratorium.

The question of whether other broiler firms are in the same fix came up frequently.

Most agreed it is all but impossible to determine this, but it was pointed out that possibly similar action may be taken following the outcome of the Chemell case.

Possible Restrictions

Hog producers are wondering if they face feed manufacturer and banker restrictions in view of the predictions the bottom will fall out of the hog market when the spring crop pours into the market. Some of the feed companies listed as Chemell creditors also have been known to encourage expansion of hog operations on large scale contract terms.

None of those interviewed showed signs of "panic" in view of complications, some of which may never develop, and some of which could be even more complex and far-reaching.

PURDUE

(Continued from page 6)

ppm.), iron (48 ppm.), manganese (61 ppm.) and zinc (50 ppm.) improved gains 15.4% compared to the controls (difference significant at the 1% level).

Differences in gains were not significant for the complete 91-day experimental period and the increase in gains for this period between the control and Lots 2, 3, 4, 5 and 6, respectively, were 3.2, 1.9, 4.5, 2.6 and 5.8%. Feed efficiency and feed costs per hundred pounds of gain were not consistently effected by the addition of the trace minerals.

Alfalfa Meal, Distillers Dried Solubles, Fish Solubles and Meat Scrap Additions to Corn-Soybean Meal Rations for Growing-Finishing Swine—J. H. Conrad, D. M. Nelson and W. M. Beeson: Ten experiments at Purdue with 10-lb. pigs fed semi-purified diets have shown that certain sources of "unidentified growth factors" will produce a small stimulation in gain and a slight improvement in feed efficiency. But as we learn more about the nutrient requirements of pigs and the availability of these specific nutrients, one fundamental question is, "Do sources of unidentified growth need to be added to corn-soybean meal rations that are adequately fortified with vitamins, trace minerals, calcium, phosphorus, salt and feed additives?"

The objective of this experiment was to study the effect of adding dehydrated alfalfa meal, corn distillers dried solubles, condensed fish solubles and meat and bone scraps to fortified corn-soybean meal rations for growing-finishing pigs fed on concrete.

Results: Pigs fed the corn-soybean meal ration fortified with vitamins, trace minerals, calcium, phosphorus, salt and antibiotics gained faster on less feed and produced the most economical gains. From 39 to 206 lb., they gained 1.71 lb. daily, required 326 lb. of feed per 100 lb. gain at a feed cost of $9.18 cwt.

Additions of 2% of dehydrated alfalfa meal, corn distillers dried solubles, condensed fish solubles, and meat and bone scraps alone or in combination failed to increase gains or improve feed efficiency. There was no statistically significant difference between treatments.

Results of this experiment indicate that it is not necessary to add animal protein or sources of "unidentified growth factors" to adequately fortified corn-soybean meal rations for growing-finishing swine fed on concrete to obtain maximum rate of gain or minimum feed use. However, dehydrated alfalfa meal will continue to make a valuable contribution to pre-gestation and gestation rations. Likewise, other sources of "unidentified growth factors" will be most valuable when added to prestarter and starter rations for young pigs.

Effect of Enzyme Additions to Corn-Soybean Meal Rations for Growing-Finishing Swine—J. H. Conrad and W. M. Beeson: Only two preliminary trials (one at Illinois and one at Nebraska) have been reported in which enzyme preparations were added to corn-soybean rations for growing-finishing swine, and in both trials the feeding of enzymes failed to produce a response. The objective of this experiment was to study the effect of feeding three different enzyme preparations to growing-finishing swine fed a corn-soybean meal type ration.

Results: Additions of three enzyme preparations to growing-finishing swine (initial weight 27 lb.) fed a corn-soybean meal type ration failed to significantly affect daily gains.

MARKETS

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
June 20	1,228	635	677	831	110	839	1,742	1,869
June 27	1,263	568	735	862	136	799	1,694	1,963
July 4	1,186	620	814	778	99	818	1,722	2,001
July 11	1,222	551	719	854	106	754	1,778	1,894
July 18	1,202	607	833	825	129	908	1,591	2,055
July 25	1,212	629	707	878	108	865	1,625	2,001
Aug. 1	1,160	638	718	797	111	845	1,550	1,898
Aug. 8	1,163	487	673	736	130	857	1,573	2,033
Aug. 15	1,082	505	757	791	103	815	1,742	1,782
Aug. 22	980	420	859	767	138	805	1,607	1,967

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
June 20	1,322	533	3,019	339	4,807	231	3,470	2,439
June 27	1,124	529	2,926	357	4,922	206	3,461	2,256
July 4	1,066	521	2,981	327	4,776	225	3,406	2,464
July 11	993	550	2,919	351	4,573	172	3,394	2,370
July 18	1,117	565	2,930	366	4,554	160	3,363	2,292
July 25	1,272	515	2,764	354	4,298	187	3,295	2,214
Aug. 1	1,026	484	2,576	331	4,033	144	3,177	2,132
Aug. 8	1,116	445	2,551	348	5,807	158	3,098	2,045
Aug. 15	1,009	528	2,660	292	5,730	177	2,973	2,169
Aug. 22	1,060	463	2,581	272	5,370	205	3,019	2,035

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1959	Total 22 areas 1958
June 20	3,398	468	2,299	384	247	1,103	33,998	36,889
June 27	3,231	487	2,367	341	262	1,108	33,597	36,237
July 4	3,580	449	2,250	332	243	1,015	33,673	35,436
July 11	3,525	386	2,301	306	238	1,021	32,977	34,912
July 18	3,483	354	2,157	351	203	945	32,990	33,846
July 25	3,597	423	2,142	303	237	1,045	32,671	33,378
Aug. 1	3,358	363	2,250	287	213	872	30,963	32,440
Aug. 8	3,287	374	2,014	335	165	959	30,354	32,003
Aug. 15	3,077	413	2,073	340	186	878	30,082	31,232
Aug. 22	3,024	366	2,028	292	161	888	29,307	30,025

Pigs fed enzymes gained 1 to 7% less than control pigs. Daily feed intake was reduced from 1.5 to 9% by the enzyme preparations used. Feed efficiency was 299 lb. of feed per 100 lb. of gain for the control and the enzyme additions reduced this to 298, 296 and 283. Feed costs per hundred pounds of gain reflected the slight improvement in feed efficiency, but the costs of the experimental enzyme preparation were not included in calculating feed costs.

The Effect of Feed Additives on Growing-Finishing Swine—J. H. Conrad, D. M. Nelson and W. M. Beeson: A recent Purdue report (mimeo. 238) has clearly indicated that the seven feed additives or combinations of feed additives tested (including two arsenicals) had no significant effect on carcass quality as measured by backfat thickness, lean cut yield, loin eye area, carcass length or dressing percentage. However, four treatments significantly increased daily gains, and the maximum improvement in feed efficiency was 7.8%. Therefore, two important criteria for evaluating presently available feed additives are daily gain and feed efficiency.

The objective of this experiment was to determine the effect of certain antibiotics, combinations of antibiotics and an arsenical on rate of gain, feed efficiency and backfat thickness of growing-finishing swine.

Results: Pigs fed each of seven different additives or combinations of additives gained significantly faster than the control pigs. Two single antibiotics (erythromycin thiocyanate and spiramycin) and two combinations of feed additives (penicillin and streptomycin and penicillin, streptomycin and sulfaquinoxaline) increased daily gains 26 to 27% compared to the controls. A combination of Aureomycin (chlortetracycline), penicillin, Terramycin (oxytetracycline) and zinc bacitracin increased gains 21% compared to the controls fed no antibiotics. A combination of oleandomycin and Terramycin increased gains 19%. Arsanilic acid increased gains 18%.

None of the feed additives resulted in a marked improvement in feed efficiency. However, arsanilic acid improved feed efficiency more than any of the additives tested (an improvement of 2.8% over the controls) and resulted in the most economical gains in this experiment.

The Effectiveness of a Mist-Type Spray for Cooling Swine on High Energy Rations—C. J. Heidenreich, J. H. Conrad, F. N. Andrews and A. A. Culver: A series of experiments conducted at Purdue during the past three years has demonstrated the practicality and effectiveness of water cooling for swine during the summer. The inability of swine to effectively dissipate body heat is accompanied by reduced feed intake when environmental temperatures exceed 80° F. This results in a marked growth retardation. Therefore, any physical means of aiding the animals in relieving themselves of body heat are effective in increasing feed intake, hence, growth rate.

The objective of this study was to evaluate the effectiveness of spray cooling on growth rate and feed intake when a high energy (10% added fat) ration is fed. In addition, a comparison was made of the role of thiamin, a vitamin essential for carbohydrate and fat metabolism, when a high energy ration is fed with and without spray cooling.

Results: Pigs weighing 107 lb. initially were on experiment for 56 days of the finishing period. During this time there were 49 days in which the environmental temperature exceeded 80° F., 32 days above 85° F. and 11 days above 90° F. Spraying significantly increased the daily gains on both the control and the thiamin supplemented rations. Sprayed controls gained 14% faster than non-sprayed controls and the sprayed group with 3 mg. per pound of added thiamin gained 15% faster than the non-sprayed group receiving thiamin.

No marked differences in efficiency of feed conversion, attributable to cooling, were observed. These findings are consistent with previous Purdue work which indicates that elevated environmental temperature stress reduces feed intake and daily gain but does not appreciably alter feed efficiency.

The effect of thiamin supplementation on daily gain was noticeable but not significant at the 5% level. Slight increases in feed intake of the thiamin supplemented groups were also observed.

Effects of Various Levels of Tranquilizers on Growing and Finishing Swine—R. A. Pickett, J. H. Conrad and W. M. Beeson: In a previous trial at Purdue (mimeo. A.S. 243) growing and finishing pigs were fed various tranquilizers in a complete mixed ration on pasture. Reserpine, Rauwolfia vomitoria, meprobamate, hydroxyzine and perphenazine were added to the ration at 60 micrograms, 25, 25, 0.5 and 0.5 milligrams per pound of feed, respectively. At these levels, the tranquilizers had no significant effect on daily rate of gain. Feed consumption and feed required per hundredweight gain were similar in all lots. The levels of tranquilizers fed did not noticeably affect the behavior or performance of the pigs in this experiment.

In view of the results of the previous trial, an experiment was conducted to determine the effects of increasingly higher levels of tranquilizers on growing and finishing swine.

Results: At the levels fed, the addition of reserpine, trifluomeprazine, perphenazine, hydroxyzine or tetrahydrozoline did not significantly increase rate of gain or feed efficiency over that of the control lot of pigs.

The pigs receiving trifluomeprazine, perphenazine or tetrahydrozoline gained at a significantly slower rate than the controls or the pigs receiving hydroxyzine. This lower rate of gain appeared to be the result of reduced feed intake as the feed conversion was very similar for all six lots.

Reduced activity was noted when trifluomeprazine and perphenazine were included at the higher levels fed. This reduced activity could possibly have been responsible for the lowered feed intake of the pigs.

Feed efficiency was good in all lots and varied from 326 to 338 lb. of feed per 100 lb. of gain. Feed cost (not including tranquilizers) ranged from $9.32 to $9.67 per 100 lb. of gain.

50% Protein Soybean Meal in 32, 36 and 40% Supplements With and Without Terephthalic Acid—J. H. Conrad and W. M. Beeson: Fifty percent protein soybean meal is higher in protein and lower in fiber than the more commonly used 44% soybean meal. This meal. also referred to as dehulled soybean meal, is being used extensively in pig starter rations and broiler rations. In this experiment, protein supplements with three levels of protein were formulated by using different proportions of 50% protein soybean meal and 12% protein soybean mill feed (the soybean hulls which are removed in the manufacture of the 50% meal).

Terephthalic acid (TPA) was added to three lots since it has recently been reported that blood levels of antibiotics are increased by the simultaneous feeding of TPA.

The objectives of this experiment were: (1) to compare protein supplements containing 32, 36 and 40% protein; (2) to study the effect of terephthalic acid on increasing the antibiotic response.

Results: Terephthalic acid (an antibiotic potentiating agent) increased gains an average of 4% (1.49 vs. 1.55) and saved 7 lb. (2%) of feed required per 100 lb. of gain. The difference in gains was not statistically significant. The terephthalic acid was added at the level of 2.5% to three different protein supplements which contained 50 grams of Aureomycin per ton.

Three soy-supplements were formulated to contain 32, 36 and 40% protein by varying the levels of 50% protein soybean meal and soybean mill feed. These supplements were fed free choice along with shelled corn to growing-finishing pigs on concrete. Although the differences were not great, pigs fed the 36% protein supplement consumed less supplement, required less feed per 100 lb. of gain and had lower feed costs than those fed either the 32 or 40% protein supplements. The ratio of 50% protein soybean meal (8.27%) to soybean mill feed (1.73) added in the 36% protein supplement was similar to the ratio of these ingredients found in 44% soybean meal. Therefore, in this free-choice experiment, there was no advantage, as indicated by pig performance, in using the 50% protein soybean meal.

Corn Silage for Sows—A Comparison of Dehydrated Pelleted Corn Silage with Regular Corn Silage—W. M. Beeson, D. M. Nelson and J. H. Conrad: Six years of research at Purdue (four years with sows and two with gilts) have proven that corn silage, properly supplemented, is an excellent and economical feed for sows and gilts during the gestation period. Storing, handling and feeding fresh or regular corn silage present certain problems that are not common to feeds that can be stored, handled and fed in pellet form. Therefore, an experiment was conducted to compare the feeding value of dehydrated pelleted corn silage with that of regular corn silage for sows during gestation.

Results: Dehydrated and pelleted corn silage was readily consumed by sows during the gestation period. Sows fed regular corn silage during the last eight weeks of gestation consumed 3.6 lb. of dry matter daily from silage. Those fed dehydrated and pelleted corn silage consumed 6.3 lb. of dry matter daily from silage. This resulted in daily gains of 0.26 lb. on regular corn silage compared to 1 lb. on dehydrated and pelleted corn silage. Considering the condition of the sows at the start, those fed regular corn silage made satisfactory gains, but those fed the pelleted silage gained four times faster.

Reproductive performance as measured by number of pigs per litter, birth weight and litter weight was excellent on both treatments. However, the sows fed pelleted corn silage farrowed fewer pigs, and more dead pigs and lost a higher percent of their pigs during the first 14 days than did the sows fed regular corn silage. As a result, the sows fed regular corn silage weaned an average of 9.9 pigs compared to 8.0 pigs for the sows fed pelleted corn silage. A satisfactory explanation for this difference in reproductive performance is not apparent at this time.

A Comparison of Corn Cobs, Soy Mill Feed and Alfalfa Meal in Pelleted Gestation Rations for Gilts—J. H. Conrad, D. M. Nelson and W. M. Beeson: Self-feeding of swine is a prerequisite to producing pork with a minimum of labor. This practice is most difficult during the gestation period. For self-feeding to be successful during gestation, an economical, low energy-high fiber ration must be provided. Previous research at Purdue (Mimeos 152 and 181) has shown that a gestation ration containing 35% ground corn cobs is satisfactory for self-feeding gilts when the ration is fed as a meal.

The addition of fibrous ingredients in sufficient quantities to control weight gains and feed intake results in a relatively unpalatable ration that is sorted and wasted by the animals. Pelleting of these high fiber rations would prevent sorting and should reduce wastage, but pelleting could be expected to minimize the effect of the fiber.

The objective of this experiment was to study the effects of three sources of fiber—ground corn cobs, soybean mill feed and sun-cured alfalfa meal—in pelleted gestation rations for gilts.

Results: Either the pelleted gestation ration containing 60% ground corn cobs or the one containing 72% soybean mill feed resulted in satisfactory reproductive performance. Both of these rations were economical, since the daily feed costs per head were 15¢ for the pelleted corn cob ration and 14¢ for the pelleted soybean mill feed ration.

Gilts fed the pelleted ration containing 60% ground corn cobs consumed 7.4 lb. of pellets per day, gained .47 lb. daily, farrowed 9.7 pigs per litter which averaged 2.6 lb. and weaned 75% of their pigs at 42 days at an average weight of 19.7 lb. These gains would appear to be low but were satisfactory when the initial weight and the condition of the gilts at farrowing time are taken into consideration. This lot of gilts consumed 1.0 lb. of crude protein daily (the requirement is 0.9 lb. daily), one-half of which was high quality protein from soybean meal.

Gilts fed the pelleted ration containing 72% soybean mill feed consumed 7.4 lb. of pellets per day, gained 1.17 lb. daily, farrowed 11.1 pigs per litter which averaged 2.5 lb. These gilts weaned an average of 7.2 pigs per litter at 42 days with an average weight of 18.4 lb.

The pelleted ration composed of 88.5% of suncured alfalfa meal was extremely unpalatable and was unsatisfactory as a gestation ration. Gilts fed this ration lost weight the first six weeks. Thereafter, they were hand fed 1 lb. of ground corn and 1 lb. of protein supplement daily in addition to the pelleted ration. Even with the addition of ground corn and protein supplement, they weaned only 53% of their pigs.

Results of these data indicate that a pelleted gestation ration should contain sufficient fiber (approximately 25%) in order to limit the gains to .75 to 1 lb. daily.

MARKETS

(Continued from page 2)

Chick placements in practically all of the southeastern states are still on the decline. Since the middle of July, the cutback in chick placements in Georgia is around 800,000 birds. North Georgia broiler prices were advanced this week a half cent a pound to 15¼¢ f.o.b. the farms, with supplies in fairly good balance with buyers' needs.

Georgia corn is beginning to show up at around $1.30@1.35 bu., with fairly good buying interest.

Heavy buying interest in both cottonseed hulls and cottonseed meal in the Southeast caused prices to advance $1 ton this week, with very few offerings from the mills until they can secure additional seed for crushing.

Citrus pulp prices remain unchanged at $35 f.o.b. Florida, with very little demand due to heavy milk surpluses and good pastures.

South Central

Feed demand continues to be curtailed by the summer doldrums. Sales volume is showing little, if any, increase over the lighter trend that started around the first of the month. Mill running time will again range from four to five days, with the average nearer to five.

Most often mentioned this week as being a dampening factor on business has been the hot and humid weather that is plaguing the area. Although showers have been numerous, temperatures have been in the high 90's for the past 15 days, and the five-day forecast calls for more of the same. Manufacturers generally are of the opinion that little improvement will take place until the weather moderates, at least a week away and probably more.

Hog feed sales are off some, a not surprising development in view of the continued heavy marketings. Dairy feed demand is spotty. Some mills report a fair volume, while others call their business slow. The specialty feeds seem best able to resist a summer letdown.

Pacific Northwest

Varying supply and demand conditions kept Pacific Northwest feed ingredient prices on a mixed course during the week's trading.

Trading, which generally ruled slow, appeared spotty for the various items. Demand from mixers and feeders was mostly limited to nearby requirements.

A seasonal abundance of homegrown feeds was reflected at Portland and Seattle by slow buying interest. Turkey and chicken mashes continued to move fairly well with little or no change in wholesale values.

Ohio Valley

Although no changes in demand for formula feeds were noted this week in the Ohio Valley, and production operations were continuing mostly on schedules of 40 hours weekly or less, Ohio Valley manufacturers were unanimous in predicting improved sales early in September, with the sales curve rising steadily through the early autumn weeks.

The corn crop, now being harvested, is reported about average in volume, and is expected to be considerably lower in moisture content than during recent years, because of the prolonged hot, dry weather in the valley area during all of August. During the last week, for instance, temperatures hereabouts have remained steadily in the upper 90's, with widely scattered showers lowering the heat and humidity only briefly.

Because of the late summer dryness, the second cutting of alfalfa in the Ohio Valley is far below bumper proportions, and of considerably lowered quality. This might reasonably be expected to improve sales of formula feeds to cattle and sheep raisers, but feed manufacturers say this appears unlikely to happen. Instead, it is said, area farmers are more likely to market their surplus cattle and sheep, especially in view of the continuing satisfactory prices at packing plants and the unlikelihood of any near-time increase in milk prices.

While September should mark the beginning of the turkey fattening season, there are this year so comparatively few young turkeys on valley farms that the seasonal feed sales stimulus is likely to be much less a factor than during recent years. Despite this, area feed manufacturers are confident that the coming weeks will be quite satisfactory insofar as sales tonnages are concerned.

Mountain States

The various formula feed dealers are of the opinion that this past week's sales volume has been almost the same or is holding its own with the previous week, and it is the same as a year ago at this time.

The feeds that have been getting the most demand this past week have been drylot cattle feeds, and this demand has also been at a standstill compared with the previous week.

All of the formula feeds being purchased at this time are for immediate sale and none whatsoever for inventory build up.

Farmers' Group Breaks With GTA on Policies

WILLISTON, N.D.—Some dissatisfied stockholders in the Farmers Union Grain Terminal Assn. are reported to have formed their own cooperative association in protest against certain GTA policies.

Leading the revolt is Anton Novak, Sr., a retired farmer. He has been elected temporary chairman of the newly-formed Grain Co-op Stockholders Assn. Backing him are 33 GTA stockholders. Mr. Novak has not revealed the nature of the complaints but he says the new association has been formed to "straighten out the GTA board of directors."

Ft. Worth Feed, Grain Firm Closes

FT. WORTH — Announcement of the closing and dismantling of the Terminal Grain Co. plant in Ft. Worth has been made by Gus Cranz, president, and Mensing West, vice president.

This landmark in the grain business, established 52 years ago by the late W. W. Manning and G. E. Cranz, is a victim of a new freeway which goes almost through the middle of the property.

In 1923 a feed mill was added to the plant to produce poultry and livestock feeds, and the first Sizer cubing machine in Ft. Worth was imported from England.

Mr. West, who started with the company 19 years ago as traffic manager, will be the sole owner of a new company to be known as the Terminal Grain & Chemical Co., handling agricultural chemicals. Warehouse space will be leased from Scott Bros. Grain Co.

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